U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
American Zinc Products Fire - Removal Polrep
Initial and Final Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject:	**POLREP #1** **Initial and Final** **American Zinc Products Fire** **Mooresboro, NC** **Latitude: 35.1916330 Longitude: -81.8488390**
To:	James Webster, USEPA R4 ERRPB Celeste Sugg, NCDENR
From:	Kenneth Rhame and Kevin Eichinger, FOSC
Date:	5/1/2019
Reporting Period:	4/28 to 5/1 2019

1. Introduction

1.1 Background

Site Number:	C489	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Emergency
Response Lead:	PRP	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	4/28/2019	**Start Date:**	4/28/2019
Demob Date:	5/1/2019	**Completion Date:**	5/1/2019
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

CERCLA
Emergency Response
PRP Lead

1.1.2 Site Description

American Zinc Products is a industrial processing, zinc recycling facility.

1.1.2.1 Location

American Zinc Products
484 Hicks Grove Rd,
Mooresboro, Rutherford County NC 28114

1.1.2.2 Description of Threat

An industrial fire started at the facility due to unknown causes threatening nearby residents to exposure of smoke and other contaminants related to zinc recycling processes. Fire suppression run-off threatened to enter the Broad River via the storm water conveyance system.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Prior to mobilizing to the Site, U.S. EPA learned through state and local responders that the building involved in the fire had a basement containing 600,000 gallons of 17%sulfuric acid, lead anodes, manganese, and electrolyte solution. An initial estimate of 1 million gallons of fire suppression water was used in an attempt to extinguish the fire. The estimate was later corrected to more than 3 million gallons. Although the storm water discharge valve was closed, NC DEQ Water Resources observed a seep at the storm water discharge that had a pH of 1.8 entering the Broad River. A half mile evacuation was advised by Rutherford County Emergency Management due to concerns regarding smoke and air emissions emanating from the fire.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

American Zinc Products Fire, Mooresboro, NC: A fire started at approximately 19:30 on 4/28/2019 at a tank located outside the "Cell House". The tank contained approximately 4,700 gallons of solution consisting of sulfuric acid, manganese and dissolved zinc with electrolyte. Fire spread to inside the "cell house" that had a 600,000 gallon basement. The basement contained water, 17%sulfuric acid, lead anodes and electrolyte.

Fire fighters used more than 3 million gallons of fire suppression water in an attempt to extinguish the fire. Fire fighting efforts began to exhaust the municipal water supply. The fire initially was thought to have expanded to the "casting building". The casting building contained molten zinc metal. Due to lack of water and other fire fighting resources, fire extinguishing efforts ceased. After further assessment it was determined that the fire had not impacted the "casting building.

A half mile evacuation distance was advised by Rutherford County Emergency Management. A shelter was established at Chase Middle School. Portions of Hwy 221 in both NC and SC were closed.

NC DEQ Water Resources assessed the water run-off at the storm water retention pond discharge to the Broad River. The bottom lagoon next to the river had approximately 8 to 9 feet of freeboard with water continuing to enter lagoon. A seep at the storm water outfall was observed with an estimated discharge rate of a half gallon per minute entering the Broad River. The seep had a pH of 1.8.

2.1.2 Response Actions to Date

EPA and Superfund Technical Assessment and Response Team (START) responded and integrated into Unified Command. The fire occurred in a large-scale zinc electroplating section of the facility. The fire caused the release of Sulfuric Acid, Sulfur Dioxide, Hydrogen Sulfide, Particulate Matter and other Voltile Organic Compounds (VOC) to the air.

CTEH, contractors hired by the Potentially Responsible Party (PRP), began conducting onsite and community air monitoring. CTEH also collected air samples for offsite analysis. EPA contractors began roving air monitoring in the morning of April 29. Elevated readings of sulfuric acid (50 parts per billion (ppb)) at the church across the street from American Zinc Products facility and up to 30 ppb in a residential neighborhood downwind) were detected throughout the ½ mile evacuation zone in the early morning and tapered off to zeros in the late morning as temperatures warmed up.

In the afternoon of April 29, START conducted surface water sampling and water quality monitoring at the discharge point from the facilities detention ponds. Samples will be sent offsite for TAL metals and pH. Water quality monitoring indicated that the area directly at the outfall is neutral.

EPA resumed fixed and mobile air monitoring at 2000 hours to determine if air quality changes during the nighttime inversion. Air monitoring continued through the night and into the morning of April 30.

A Unified Command (UC) meeting was held at 0800 hours on April 30. EPA and CTEH presented the air monitoring data. Air quality throughout the community returned to background levels. After a review by

State and Local Health Departments, Rutherford County Emergency Management lift the ½ mile evacuation.

After the UC meeting, OSC Eichinger met with American Zinc Management to discuss remediation and completed a site assessment.

The fire in the damaged section of the facility is largely extinguished. The remaining material that is smoldering is believed to be fiberglass reinforced plastics building material. This smoldering building material will either self-extinguish or will be extinguished during the demolition. Demolition is required to access the smoldering material, and this cannot be completed unit the fire investigation is completed, and demolition equipment arrives on site. The plume is very small to nonexistent.

The electroplating unit has a concrete sump that acts as secondary containment. The firefighting runoff water/chemicals were pumped out of the secondary containment back into their process to recover any metals. The area around the electroplating unit is designed to act as additional containment. All firefighting water has been removed from this area and crews are actively cleaning the concrete. These areas are currently segregated from the rest of the stormwater management systems. Other impacted areas of the stormwater system are being pumped out and cleaned. All collected firefighting runoff water is managed through the facilities processing system to remove any metals. There is a significant amount of freeboard available to handle rain events. There are no currently no discharges from the outfall to the river. American Zinc with manage any stormwater following their existing NPDES/Stormwater Permit.

A site remediation plan is being developed. Air monitoring will continue through the cleanup operations. Plans will be provided to NCDEQ and EPA.

EPA and START demobilized from the Site on May 1, 2019

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

American Zinc Products

2.2 Planning Section

The PRP is still actively removing firefighter runoff water from the facility and cleaning the plant in preparation for forecast rains.

EPA demobilized from the site and the long term cleanup will be managed by the PRP with state NC DEQ oversight.

PRP will submit remediation plans to NC DEQ.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FEB 22 2016

Brent G. Burch
Compliance Branch Head
Hazardous Waste Section
Division of Waste Management
North Carolina Department of Environmental Quality
PO Box 1427
Andrews, North Carolina 28901

SUBJ: Notice of Agency Intent to Pursue Formal Enforcement
Action Pursuant to RCRA Section 3008
Horsehead Metal Products, Inc.
EPA ID# NCR000159038

Dear Mr. Burch:

On October 14-15, 2015, a U.S. Environmental Protection Agency compliance evaluation inspection was conducted at Horsehead Metal Products, Inc. in Mooresboro, North Carolina, to determine the facility's compliance status with the Resource Conservation and Recovery Act (RCRA).

Apparent violations of RCRA were discovered. Based on the findings of the inspection, the EPA considers this facility to be a Significant Non-Complier.

If you have any questions regarding this matter, please contact Paula Whiting by phone at (404) 562-9277 or by email at whiting.paula@epa.gov.

Sincerely,

Héctor M. Danois
Acting Chief, Hazardous Waste Enforcement
and Compliance Section
Enforcement and Compliance Branch

Enclosure

RCRA Inspection Report

1) Inspector and Author of the Report

Paula A. Whiting
Environmental Engineer
Enforcement and Compliance Branch
Resource Conservation and Restoration Division
US EPA Region 4 SNAFC – 10th Floor
61 Forsyth Street, SW
Atlanta, Georgia 30303
whiting.paula@epa.gov
(404) 562-9277

2) Facility Information

Horsehead Metal Products, Inc.
484 Hicks Grove Road
Mooresboro, North Carolina 28533
Rutherford County
EPA ID# NCR000159038

3) Responsible Official

Jim Harris, Environmental Manager

4) Inspection Participants

Jim Harris	Horsehead Metal Products, Inc.
Charlie Howell	Horsehead Metal Products, Inc.
Roberta Proctor	NC DEQ
Jeff Menzel	NC DEQ
Brent Burch	NC DEQ
Laurie Benton Digaetano	US EPA Region 4
Javier Garcia	US EPA Region 4
Mike Neill	US EPA Region 4
Paula Whiting	US EPA Region 4

5) Date and Time of Inspection

October 14-15, 2015, at 9:45 a.m. EST

6) Applicable Regulations

Resource Conservation and Recovery Act (RCRA), 42 U.S.C.A. §§ 6901 to 6992

Sections 3005 and 3007 of RCRA, 42 U.S.C.A. §§6925 and 6927

40 Code of Federal Regulations (C.F.R.) Parts 260-270, 273, and 279

Title 15A, Chapter 13, North Carolina Administrative Code (NCAC)

7) **Purpose of Inspection**

The purpose of this inspection was to conduct an unannounced RCRA compliance evaluation inspection (CEI) to determine the Horsehead Metal Products, Inc.'s (HHMP), EPA ID# NCR000159038, compliance with the applicable regulations.

8) **Facility Description**

Horsehead Metal Products, Inc. in Mooresboro, North Carolina, is a zinc and diversified metals production facility. This facility utilizes solvent extraction and electro-winning technology to selectively remove and refine valuable metals from electric arc furnace-based feed and other recycled materials into special high-grade zinc and other metal concentrates containing silver, copper and lead. Solvent extraction selectively extracts zinc from a solution containing the multiple constituents typical of Horsehead's recycled feedstock. This facility currently produces prime western (PW) grade zinc. In the future, the facility will also produce special high-grade (SHG) zinc and continuous-galvanizing grade (CGG) zinc.

The facility currently has five active production areas, and a reagent storage area. HHMP is constructing an additional production area. The Area 100 (Leaching) takes waelz oxide (WOX) dust and washes it with bleed treatment solution from Area 300 to remove chloride and potassium, and then feeds the slurry into the Leaching unit to dissolve most of the contained zinc in the WOX. The purified aqueous solution called Pregnant Leaching Solution (PLS) is heated and pumped to the Area 200 (Solvent Extraction).

The Area 200 which produces ultra-high quality zinc loaded electrolyte, is divided into four subsections: extraction, washing, stripping and depletion. The extraction stage transfers the zinc from the PLS to a ligand exchange reagent. The washing stage removes impurities from the zinc loaded organic phase using physical and chemical washings. The stripping stage strips out the zinc content using an acidic aqueous solution. The depletion stage takes a small bleed from the slurry and treats it with gypsum precipitation, cementation and zinc depletion to reduce the amount of zinc and some of the impurities in the final liquid effluent. Depletion stage takes place in Area 300.

The Area 400 (Electro-winning) produces zinc metal from the zinc-bearing solution (loaded electrolyte). Direct current is applied to the solution, so a deposit of zinc metal is grown from the electrolyte onto aluminum cathodes. The zinc plates are then mechanically stripped and sent to Area 500 melting. The zinc-depleted solution (spent electrolyte) is recycled to the Stripping unit in Area 200.

Area 500 (Furnaces) consists of melting, alloying and casting using four induction furnaces and a casting operation.

Area 600 is the Placid Intermediate Plant (PLINT) process which recovers lead and silver from the leaching (lead) residue. In this stage, lead and silver contained in the leaching residue is

dissolved in a hot brine solution to obtain a solid residue free of lead and chlorides. This area is currently being constructed and is not in operation.

Area 700 is designated as an area for reagents preparation and distribution to the plant. This area is used for reagent storage, has two lime silos, six WOX silos, a soda ash silo and hydrated lime storage silo.

HHMP's most recent Hazardous Waste Generator Notification (EPA Form 8700-12) dated June 19, 2014, characterized the facility as a large quantity generator (LQG) of hazardous waste.

Currently, HHMP generates oils and lubricants, solvents and debris and waste rags as well as universal waste batteries, lamps and other wastes which include EPA Waste Codes D001, D002, D006, D008, D035, F003, and F005 wastes.

9) Previous Inspection History

On August 13, 2014, the EPA and NC DEQ conducted a compliance evaluation inspection based on a complaint and three apparent violations were found at the time of the inspection. The violations were returned to compliance on November 20, 2014.

10) Findings

Upon arriving at the HHMP facility, the inspectors presented their credentials to receptionist and signed in. The inspectors then held an opening conference with Mr. Anthony Staley, General Manager and Mr. Jim Harris, Environmental Manager, gave a brief explanation for the purpose of the inspection, introduced the inspectors, and requested a description of the facility operations. The inspectors requested a tour of the facility. The inspectors then performed a walk-through inspection of the facility. Below is a description of the observations made during the walk-through.

10.1. WOX Unloading/Rail Yard

At the time of the inspection, HHMP was shut down for maintenance since October 12th and was scheduled to come back online in seven days.

The waelz oxide (WOX) dust is brought in via pressure differential railcars to the WOX Unloading Area (Pictures 2, 5, 8, 17-19). This area consists of four converging rail lines that move the cars into the unloading area, and five rail lines used for storage of the incoming and outgoing railcars. Because of the restricted access that requires respirators, at the time of the inspection only EPA inspector Paula Whiting entered the WOX Unloading Area.

The inspector was escorted by Chris Jarrold, Rail Yard Supervisor, who explained that the building holds six railcars containing WOX or lime (Pictures 13-15). The railcars are unloaded using a blower system (Pictures 10-12). A hose is connected to the system that blows 14 pounds of air pressure into the railcar. The contents of the railcar are pushed into the hose and the hose unloads into the silo piping. Mr. Jarrold stated that they currently process four railcars a day. At the time of the inspection, 35 railcars were sitting on the storage tracks.

The inspector also observed a high vacuum system to collect the released WOX dust (Pictures 20-21). Mr. Jarrold explained that the dust from the vacuum system was not a waste and was sent to WOX washing. Spent hoses contaminated with WOX dust from the blower system were observed on a pallet beside the storage tracks (Pictures 7-9). A gray trash can that contained used Tyvek suits was located near the stairs to the blower system (Pictures 14, 16), and a gray trash can that contained contaminated debris from unloading WOX was located near the high vacuum system (Picture 6). Both containers and the spent hoses were open and unlabeled. Mr. Jarrold explained that the used Tyvek suits are considered regular trash and not hazardous waste because they were not contaminated with the WOX dust. However, the trash can is located inside the WOX Unloading Area without a lid and the Tyvek are worn during the unloading process.

Pursuant to 15A NCAC 13A.0110 as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 265.173(a) as referenced in 40 C.F.R. § 262.34(c)(1)(i)], a generator may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in §261.31 or §261.33(e) in containers at or near any point of generation where wastes initially accumulate which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with paragraph (a) or (d) of this section provided he complies with § 265.173(a) of this chapter in such that a container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. The two trash containers of hazardous waste were open.

Pursuant to 15A NCAC 13A.0107 [40 C.F.R. § 262.34(c)(1)(ii)], a generator may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in §261.31 or §261.33(e) in containers at or near any point of generation where wastes initially accumulate which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with paragraph (a) or (d) of this section provided he marks his containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers. The two trash containers of hazardous waste were not labeled.

Pursuant to 15A NCAC 13A.0110 as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 265.173(a) as referenced in 40 C.F.R. § 262.34(a)(1)(i)], except as provided in paragraphs (d), (e), and (f) of this section, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that the waste is placed in containers and the generator complies with the applicable requirements of subpart I of part 265 of this chapter in such that a container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. The spent hoses, a hazardous waste, were not contained.

Pursuant to 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(2) and (a)(3)], except as provided in paragraphs (d), (e), and (f) of this section, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that the date upon which each period of accumulation begins is clearly marked and visible for inspection on each container; and while being accumulated on-site, each container and tank is labeled or marked clearly with the words, "Hazardous Waste". The spent hoses, a hazardous waste, were not labeled or marked with an accumulation start date.

10.2. Area 500 – Melt Shop/Zinc Oxide Baghouse

The furnaces were designed to handle 16,500 pound bundles of zinc plates, stacked and placed inside (Pictures 1, 3-4). The zinc is melted and poured into molds for 25-pound and one-ton ingots. The ingots are sold to the steel industry for galvanizing uses, erosion protection of steel, the construction industry and the automotive industry. HHMP will produce three products: prime western which contains 1% lead, continuous galvanizing grade which has 1.5% aluminum and a special high grade which is 99% zinc.

Across from the Area 500 are four baghouses that capture the zinc dust from the furnace (Pictures 23-24). Mr. Harris explained to the inspectors that the zinc oxide baghouse dust was shipped to the Horsehead facility in Rockwood, Tennessee, and because of its purity could not be added back into their process.

Also in this area, the inspectors observed spent aluminum cathodes from the Electro-winning Area staged to be cleaned (Pictures 25-26), and a pile of zinc clean out material from the bottom of the cellhouse (Pictures 27-28). Mr. Harris stated that the zinc clean out material will be placed into a roll-off and put into the dross recycling process.

The inspectors then examined the Recirculation Tank (Picture 29) and secondary containment. The secondary containment was storing rainwater, electrolytes, sulfuric acid (which exceeded the reportable quantity), wash water, drips and overflow. The inspectors observed that this liquid had seeped between the tank and the floor seal. The high pH water flowed from the secondary containment into the storm water drain, into Basin 1 and out the storm water discharge pipe. HHMP determined the cause of the seepage was the improperly installed sealant between the floor and the tank. The sealant had eroded away because of the high pH.

The situation was further impaired by the north side sump pump failing and the process water rising higher than normal in the secondary containment area. HHMP stated that the leak was detected in a drain on September 5, 2015, however, the source was not discovered until September 8, 2015. Roll-offs of hazardous and non-hazardous waste from the Recirculation Tank spill are located near the depleted solution area.

The inspectors observed a silver tank labeled "Waste Acid Slurry Tank" (Picture 30). When asked about the contents of the tank, Mr. Harris explained that the tank was labeled incorrectly and it should be called "Excess Acid Slurry Tank." The tank is used to capture and store the extra acid slurry from the Electro-winning process.

10.3. 100 Area

The 100 Area Leaching contained a six-pack of reactors and a clarifier which are the core of the process. At the time of the inspection, the 100 Area secondary containment system was flooded with water because the drains and underlines were plugged with Leach Residue solids (Pictures 31-36). Mr. Harris explained that the solids came from the Leach Residue secondary containment area and was allowed to accumulate in the secondary containment area up to 24-hours.

The inspectors also observed that Leach Residue and rain water had accumulated in the 100 Area Reactor and Leach Residue Press secondary containments (Pictures 37-40). Footprints were observed outlined in the Leach Residue discharged to the secondary containment. The inspectors

inquired whether the discharged Leach Residue was a waste material. Mr. Harris explained that the Leach Residue was not waste and would be sent to Palmerton and Rockwood facilities and recycled. The PLS secondary containment was also filled with rainwater (Picture 41).

The inspectors expressed concern that the Leach Residue is stored inside the secondary containment instead of a tank or roll-off prior to shipping to other Horsehead facilities. Additionally the HHMP employees and contractors are exposed openly to the cadmium, lead and zinc in the Leach Residue in the form of dust, mud and contaminated water. The EPA and NC DEQ advised Mr. Harris that the Leach Residue contained hazardous constituents zinc, lead, cadmium and chromium, and releasing the residue into the secondary containment was not considered to be in-process or to be properly stored and/or contained. The EPA and NC DEQ explained that the residue be stored in appropriate containers until such time that it can be shipped off or used in the process.

Pursuant to 15A NCAC 13A.0110 [40 C.F.R. § 265.31] as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(4)], facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

The 100 Area main secondary containment was observed covered in unknown dust and mud (Pictures 42-44). When asked, Mr. Harris explained that dust and mud was residue from the Reactors, the Leach Residue Press and other processes. The inspectors expressed concern that the residue containing cadmium, lead, and silver was being tracked out of the area and around the facility. In addition, the discarded residue was not being used for its intended purpose, thus making the residue on the ground of the 100 Area main secondary containment a hazardous waste.

Pursuant to 15A NCAC 13A.0107 [40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 40 C.F.R. § 261.2, must determine if residue dust and mud on the ground of the 100 Area main secondary containment is a hazardous waste.

10.4. 200 Area

At the time of the inspection, a tank was being replaced in the 200 Area. Mr. Harris explained that in the 200 Area, zinc and PLS are sent to the organic storage mixing tank. From there the mixtures is sent to the settlers to create electrolyte. The spent hydrochloric acid from the Stripping process is currently not recovered. Instead, the spent acid is neutralized in the process and turned into salt. The salt, which is a part of the Final Residue, goes to the Final Residue presses and then shipped to the Palmerton facility.

10.5. Raffinate Area

The inspectors observed that the 200 Area Raffinate secondary containment was filled with rainwater. Upon closer examination, it was observed that the secondary containment concrete was etched (Pictures 45-48). The inspectors expressed concern over the etching in the concrete and asked what caused the etching. Mr. Harris explained that overflow of the Raffinate tanks due either to operation error or process issue upset. Mr. Harris indicated that a coating contractor had been obtained and was ready to coat the secondary containment.

The inspectors expressed concern that the in-process material that HHMP is storing is causing etching in the secondary containment system. Secondary containment areas are required to have a base that must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. The EPA advised Mr. Harris that releasing the acidic aqueous solution into a permeable structure was not considered to be properly stored and/or contained. The EPA and NC DEQ further explained that the Raffinate secondary containment be re-coated prior to any further releases or upsets.

Pursuant to 15A NCAC 13A.0110 [40 C.F.R. § 265.31] as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(4)], facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

In April 2015, a pipe failed and released a sulfuric (30%) acid solution on to the ground outside of the secondary containment. HHMP responded, stopped the release, excavated soil and used a vacuum pump to remove residual liquids. pH monitoring in the drainage channel was neutral; however, the area was experiencing heavy rains, which may have added in the neutralization of the liquid.

In May 2015, HHMP had a release of depleted solution from a ruptured elbow in the piping. The solution filled the secondary containment before overflowing onto the ground and down the drainage channel (Pictures 49-52). The release was reported as hydrogen sulfide and zinc solution to the National Response Center (Incident Report # 1116915). HHMP neutralized the ground and removed the solution contaminated soil into roll-offs in July 2015.

The roll-offs were being stored underneath a power line on bare ground (Pictures 53-58). The inspectors expressed concern about the possibility of release from the roll-offs on to the ground and the surrounding area.

Additionally, the inspectors expressed concern that the depleted solution contaminated soil roll-offs are being stored on bare ground. The EPA and NC DEQ explained that the roll-offs be moved to a concrete secondary containment area for storage.

Pursuant to 15A NCAC 13A.0110 [40 C.F.R. § 265.31] as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(4)], facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

10.6. Basin 1

The inspectors toured the Basin 1, which has a million-gallon capacity for storm water use only (Pictures 59-66). At the time of the inspection, HHMP was removing the overflow sediment and placing the cleanup material, which is a hazardous waste, into four roll-offs.

10.7. Gypsum Plant

The Gypsum Plant was not in operation at the time of inspection (Pictures 67-68, 87). The inspectors observed a backhoe operator turning over wet piles of gypsum because the gypsum dryer was not running.

10.8. Final Residue Press Area

At the time of the inspection, the inspectors observed piles of Final Residue on the ground outside the Final Residue Press building. This building collects the high zinc residue from the process, drops it onto the ground and the residue is frontloaded into piles in the secondary containment/runoff area (Pictures 69-76, 78, 86). The building was originally designed to drop the residue into the roll-offs but the chutes did not properly align to deposit the residue into the roll-offs, so the roll-offs were removed. The zinc residue is currently stored in front of a blue building besides the Final Residue Press building. Once the high zinc residue is frontloaded into roll-offs, the containers are shipped to Horsehead in Palmerton, PA. In the future, the residue will be used for feed material in the PLINT Plant.

10.9. WOX Wash Clarifier

The inspectors observed that the WOX Wash Clarifier secondary containment was filled with rain water and tank overflow material (Pictures 77, 79-85). The ground surrounding the clarifier contained residue dust, mud and rainwater. The area had been recently covered in concrete six months previous.

The inspectors are concerned that the Final Press Residue is stored on the ground prior to shipping to other Horsehead facilities. Additionally the HHMP employees and contractors are exposed openly to any constituents in the Final Press Residue in the form of dust, mud and contaminated water. The EPA and NC DEQ observed that releasing the residue onto the ground was not considered to be in-process or to be properly stored and/or contained. The EPA and NC DEQ explained that the residue be stored in appropriate containers until such time that it can be shipped off or used in the process.

Pursuant to 15A NCAC 13A.0110 [40 C.F.R. § 265.31] as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(4)], facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

10.10. Crude Press

The inspectors walked through the 300 Area (Pictures 88-89) to the Crude Press. At the time of the inspection, the inspectors observed two covered roll-offs with hazardous waste labels. The roll-offs contained ZOC filter cake waste and leach residue debris (Pictures 90-91). Outside the Crude Press building, one roll-off was observed labeled and covered, however some unknown mud was located on the base of the roll-off and on the ground beside it (Pictures 97-98). A second labeled and covered roll-off was located inside the Crude Press (Pictures 92-96).

Pursuant to 15A NCAC 13A.0107 [40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 40 C.F.R. § 261.2, must determine if the unknown mud located on the base of the roll-off and on the ground of the Crude Press is a hazardous waste.

10.11. Storm Water Ponds

At the time of the inspection, the facility was storing 57 supersacks of spent manganese along the Storm Water Ponds driveway (Pictures 103-105, 108). Mr. Harris explained that the spent manganese was from the cellhouse cleanout and would be sold because of the lead and silver concentrate. The inspectors expressed concern that many of the supersacks were open and none of the bags were labeled as hazardous material prior to shipping out. In addition, the inspectors noted that a broken supersack of high end sand to be used in the sand and carbon filters (Pictures 106-107). The inspectors expressed concern over the management and improper storage of the raw product.

The storm water ponds were filled with sediment from the facility at one end and contained process water from the equipment and secondary containments (Pictures 99-102, 109-110). During the closing meeting, Mr. Staley explained that the sediment will be placed back into the process, and the storm water pond would be returned to its intended use.

The EPA advises HHMP to consider the definition of surface impoundment regarding HHMP's storm water ponds. Surface impoundment or impoundment means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons. At the time of the inspection, HHMP was using their storm water ponds to hold process liquids and sediments from the process until such a time that the hazardous material could be reintroduced into the process. Therefore, the storm water ponds were being used as surface impoundments.

Pursuant to 15A NCAC 13A.0110 [40 C.F.R. § 265.31] as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(4)], facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

10.12. Maintenance

The inspectors observed two hazardous waste roll-offs stored in the gravel area near Maintenance (Picture 111). Mr. Harris explained that there were 90-Day Hazardous Waste Storage areas throughout the facility and that once the facility was fully operational the areas permanently would be designated.

The universal waste storage area was located in the Maintenance Shop (Pictures 112-113). The inspectors observed that the containers were enclosed inside a storage cage, closed, labeled and dated. No issues were observed in this area.

10.13. Quality Control Laboratory

The Standards Lab contained unlabeled sample bottles on the floor (Pictures 114-117). Mr. Ron Gilbert explained to the inspectors that the sample bottles would be sent back to the process for recycling.

The inspectors toured the Spectrometer Lab and observed used synthetic oil containers waiting to be discarded (Picture 118). Mr. Gilbert explained the oil was being changed out. The bottles were observed not labeled and not kept in secondary containment at the time of the inspection.

Pursuant to 15A NCAC 13A.0119 [40 CFR 279.22(c)(1)], containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil."

The Process Lab main area contained a black 55-gallon drum with a funnel attached in the satellite accumulation area (Pictures 119-120). The funnel was observed sealed closed and the drum was labeled. The lab stored empty bottles and containers along the walls for reuse and recycling.

The inspectors observed white totes of diluent waste (Picture 121), white containers of organic material samples (Picture 122) and jars and totes of spent DEPHA (Pictures 123, 126) were to be recycled in the process were being stored along the walls in the lab.

Inside a fume hood, a one-gallon jar of chromic acid waste with a hand written label was open and evaporating (Pictures 124-125). Mr. Brian Forbes had the jar immediately capped. The inspectors noted that the labeling for the satellite accumulation area (SAA) containers were not consistent to indicate a waste or raw material. The inspectors recommended revising the labeling on the waste containers to avoid confusion in the future. The inspectors also noted that the SAA containers with waste material were not always closed. The inspectors recommended revisiting container management training to ensure that hazardous waste containers are kept closed.

Pursuant to 15A NCAC 13A.0110 as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 265.173(a) as referenced in 40 C.F.R. § 262.34(c)(1)(i)], a generator may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in §261.31 or §261.33(e) in containers at or near any point of generation where wastes initially accumulate which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with paragraph (a) or (d) of this section provided he complies with § 265.173(a) of this chapter in such that a container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

10.14. Less than 90-Day HWSA

The less than 90-day hazardous waste storage area (HWSA) is located in the 500 Area – Melt Shop warehouse. The inspectors observed a fenced-in area that was locked and marked with warning signs. Inside the enclosure was four 55-gallon drums of used oil, oily water, oily rags and oily cleanup and one drum of neutralized acid spill cleanup. The drums were observed labeled and closed (Pictures 127-128). No hazardous waste was stored in this area at the time of the inspection.

10.15. 500 Area Melt Shop Warehouse

The Melt Shop was not operating at the time of the inspection. The inspectors observed supersacks and pallets of furnace skimming waiting to be shipped out (Pictures 129-133).

Records Review

After the walkthrough, the inspectors requested training records, contingency plan, weekly inspection logs, the hazardous, non-hazardous, used oil and the universal waste manifests. The generator status notification (EPA Form 8700-12) was last updated June 19, 2014.

Mr. Jim Harris received the NC DEQ 8-Hour Basic Hazardous Waste Compliance for Generators training course on May 22, 2014. Mr. Harris and Mr. Charlie Howell received the NEXEO Solutions Environmental Waste Management and RCRA/DOT Regulatory Training on August 6, 2015. HHMP employees received in-house training on October 27th, 28th and November 3rd of 2014. Job titles and descriptions for HHMP employees that handled hazardous waste was not observed in the training records.

Pursuant to 15A NCAC 13A.0110 as referenced in 15A NCAC 13A.0107 [40 C.F.R. § 265.16(d)(1-2) as referenced in 40 C.F.R. § 262.34(a)(1)(i)], the owner or operator must maintain the following documents and records at the facility: (1) The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job; (2) A written job description for each position listed under paragraph (d)(1) of this Section. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications, and duties of facility personnel assigned to each position.

The Integrated Contingency Plan for HHMP, Inc. Facility, located in Mooresboro, North Carolina, dated December 2013, was reviewed. HHMP updated their status to large quantity generator on June 19, 2014. The plan included a current emergency contact list, a fire extinguisher map, an evacuation map and a list of emergency response equipment. Documentation (i.e., green return receipt cards) that copies of the contingency plan were provided to the local emergency response agencies (i.e., fire, police, and hospital) was available.

The weekly inspection records were reviewed for hazardous waste roll-offs and the 90-Day HWSA. No issues were observed during the review.

The waste profile for waste PLINT feed material was reviewed.

The hazardous and non-hazardous waste outbound manifests and land disposal forms were reviewed. Leaching floc, baghouse waste, spent solvents, leach residue debris, carbon filter contents and concrete coating waste with soil were removed and disposed of by EQ Detroit (EPA ID MID980991566); Tradebe Treatment and Recycling of Tennessee (EPA ID TND000772186); EQ Michigan Disposal (EPA ID MID00724831) in Belleville, MI; Chemical Waste Management (EPA ID ALD000622464) in Emelle, AL and Envirite of Ohio (EPA ID OHD980568992) in Canton, OH. The land disposal restriction forms were reviewed.

Oily water were removed and disposed of by VLS Recovery Services (EPA ID SCR000762468) in Maudlin, SC and JBR Environmental Services (EPA ID SCR000004358) in Spartanburg, SC.

Depleted solution spill soil cleanup was removed and disposed of by Waste Management Palmetto Landfill (EPA ID SCD981476492) in Wellford, SC.

Summary

The closing conference was held with representatives of HHMP, NC DEQ and the EPA. During this meeting, the EPA and NC DEQ presented the preliminary results of the inspection, HHMP was inspected as a large quantity generator of hazardous waste. At the time of the inspection, HHMP did not appear to be in compliance with some requirements of RCRA.

11) **Signed**

Paula A. Whiting, Inspector — Date: 2/22/16

12) **Concurrence**

Héctor M. Danois, Acting Chief — Date: 2-22-16
Hazardous Waste Enforcement
and Compliance Section
Enforcement and Compliance Branch

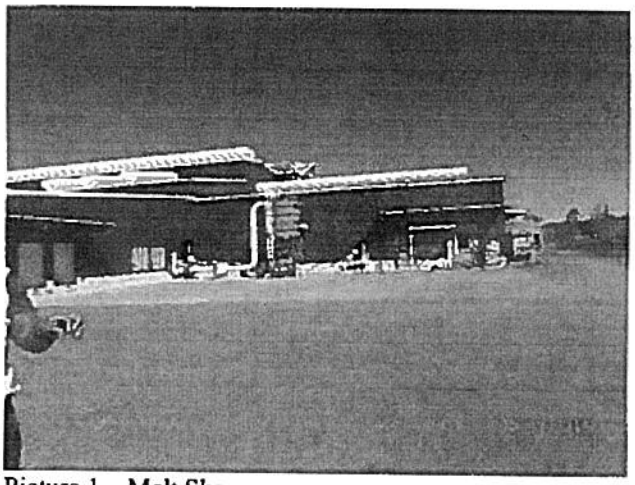
ATTACHMENT A

HORSEHEAD METAL PRODUCTS, INC.

MOORESBORO, NORTH CAROLINA

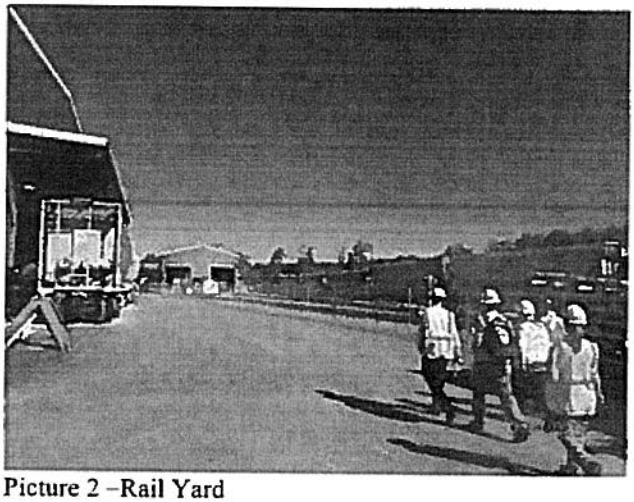
COMPLIANCE EVALUATION INSPECTION PHOTOGRAPHS

OCTOBER 14-15, 2015

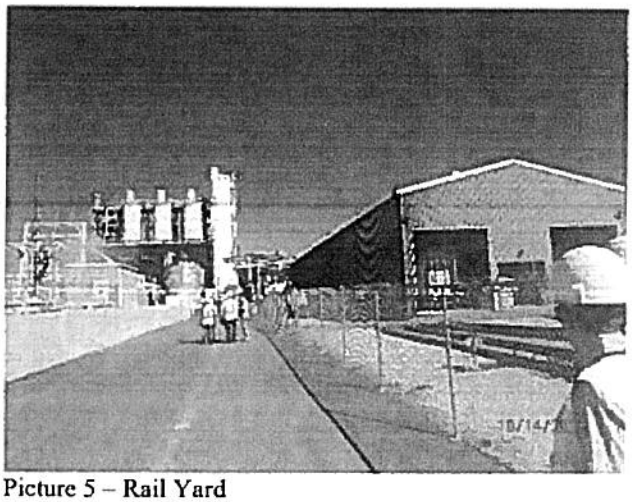


Picture 1 – Melt Shop

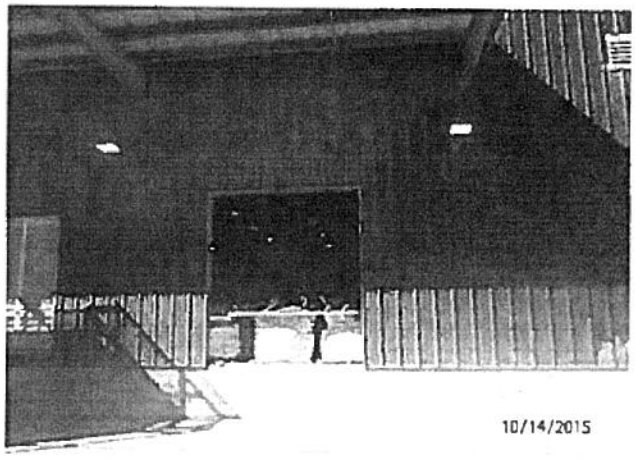
Picture 4 – Zinc Sheets waiting to be processed



Picture 2 –Rail Yard



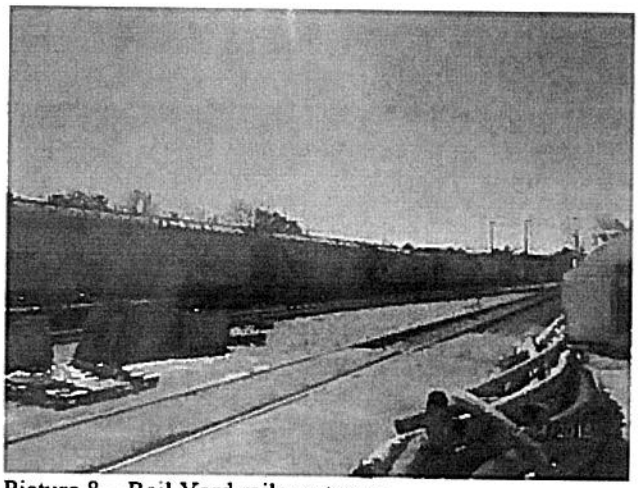
Picture 5 – Rail Yard



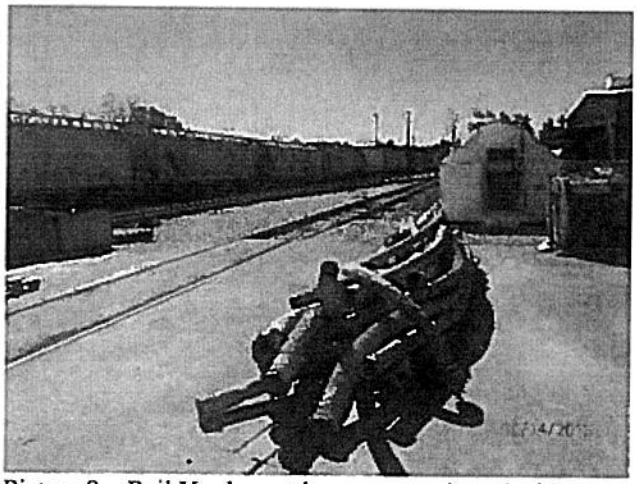
Picture 3 – Melt Shop Skimmings

Picture 6 – Rail Yard hazardous waste debris open container

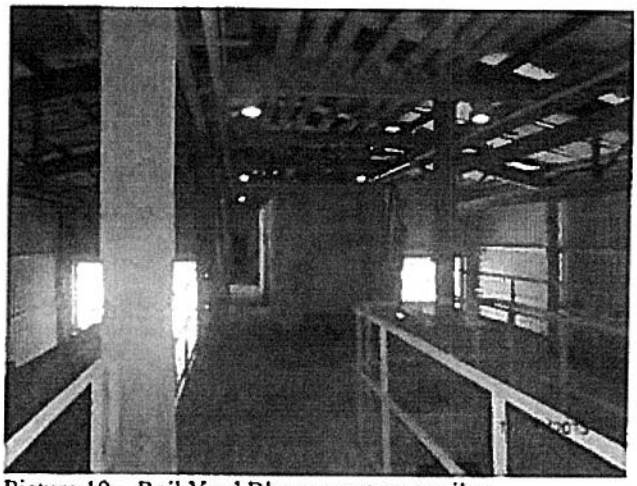
Picture 7 – Rail Yard spent hoses contaminated with WOX



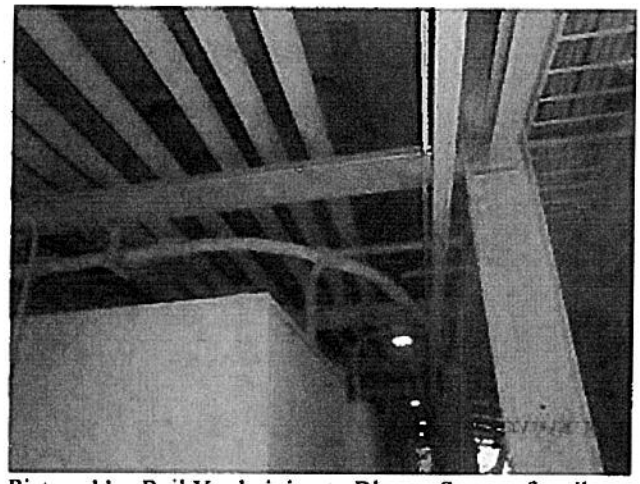
Picture 8 – Rail Yard railcar storage



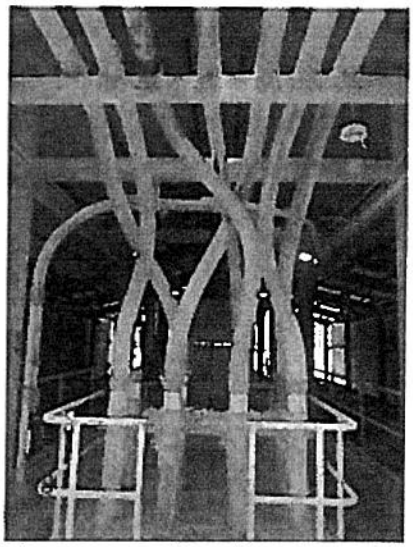
Picture 9 – Rail Yard spent hoses contaminated with WOX



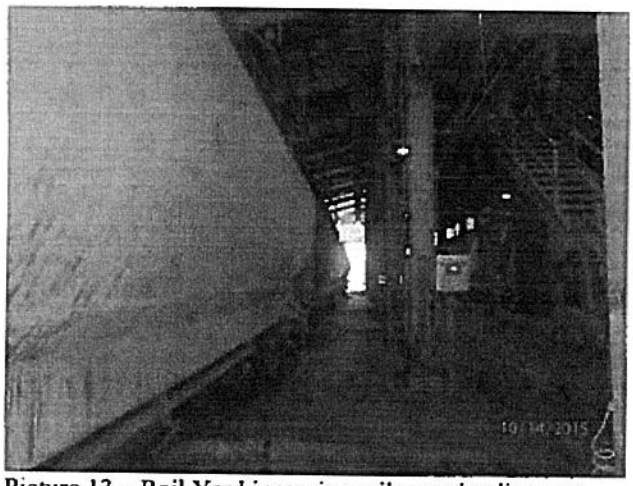
Picture 10 – Rail Yard Blower system to silos



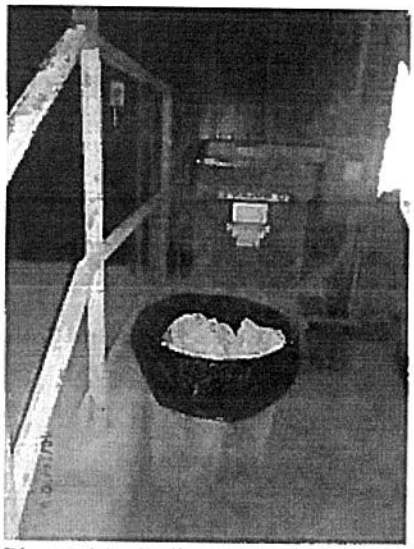
Picture 11 – Rail Yard piping to Blower System for silos



Picture 12 – Rail Yard hose connections to the incoming railcars

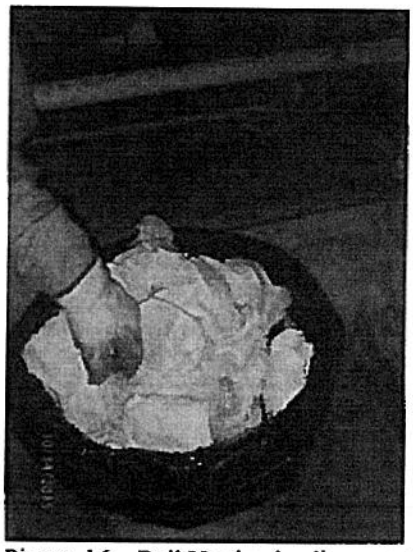


Picture 13 – Rail Yard incoming railcar unloading area



Picture 14 – Rail Yard unloading area trash can with WOX contaminated tyvek

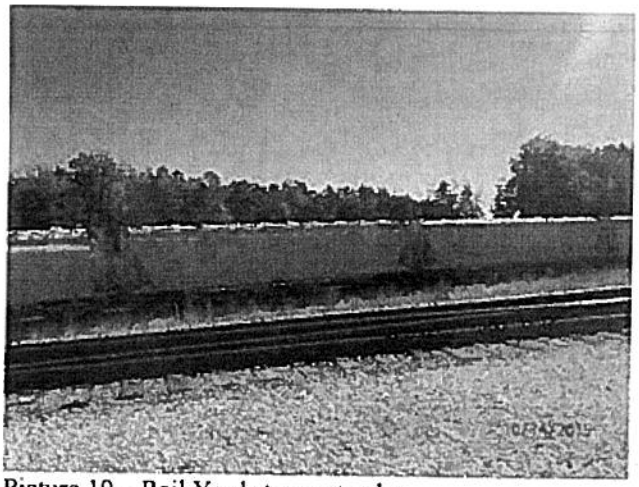
Picture 15 – Rail Yard incoming railcar unloading area



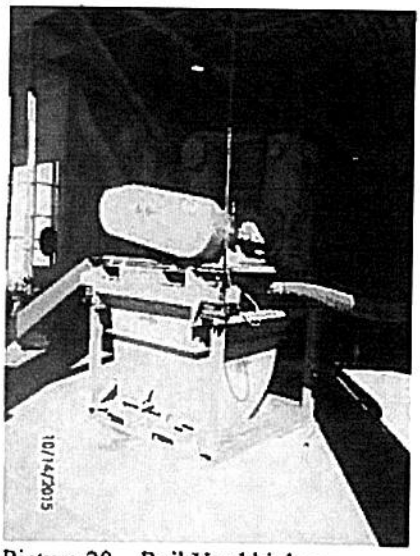
Picture 16 – Rail Yard unloading area trash can with WOX contaminated tyvek

Picture 17 – Rail Yard storage tracks

Picture 18 – Rail Yard storage tracks

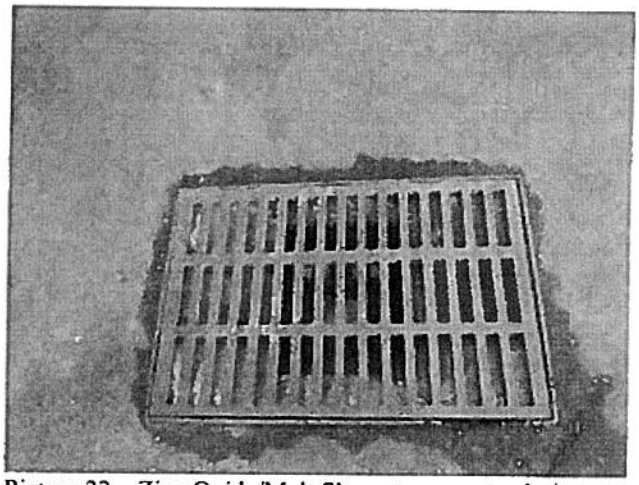


Picture 19 – Rail Yard storage tracks

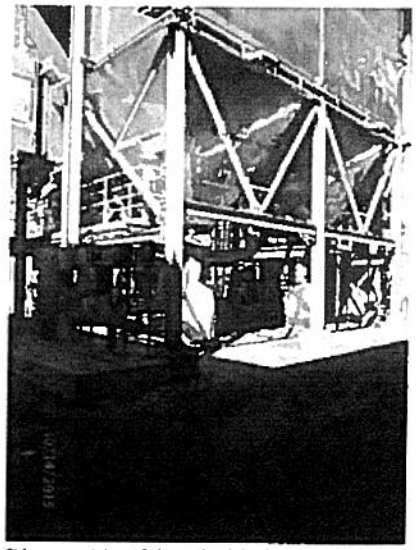


Picture 20 – Rail Yard high vacuum system for WOX dust

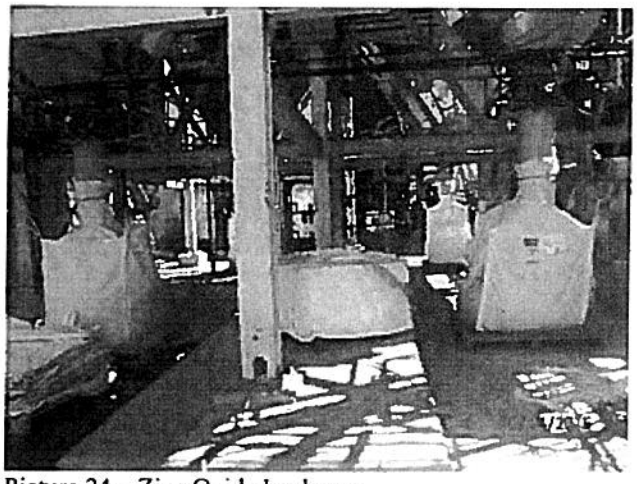
Picture 21 – Rail Yard high vacuum system for WOX dust



Picture 22 – Zinc Oxide/Melt Shop storm water drain

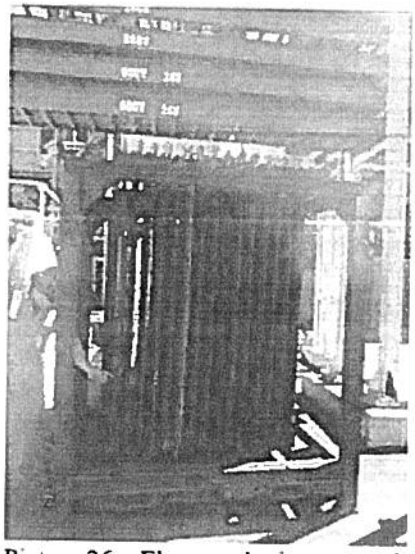


Picture 23 – Zinc Oxide baghouse



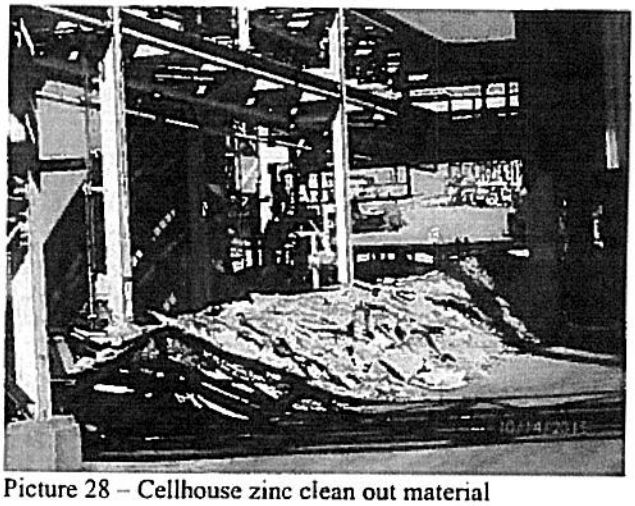
Picture 24 – Zinc Oxide baghouse

Picture 25 – Electro-winning spent aluminum plates

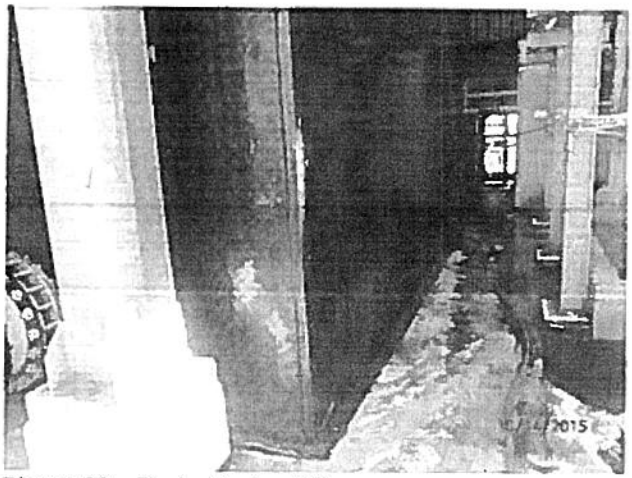


Picture 26 – Electro-winning spent aluminum plates

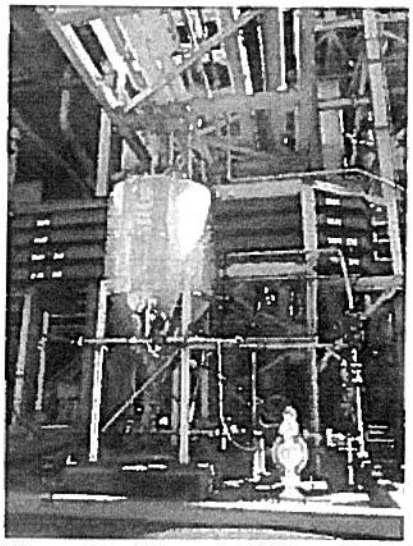
Picture 27 – Cellhouse zinc clean out material



Picture 28 – Cellhouse zinc clean out material



Picture 29 – Recirc Tank – failure area

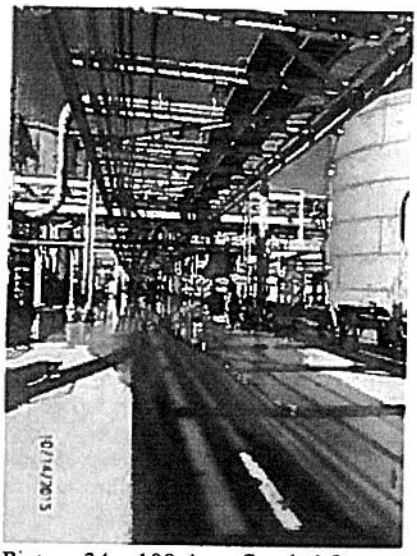


Picture 30 – Waste Acid Slurry Tank

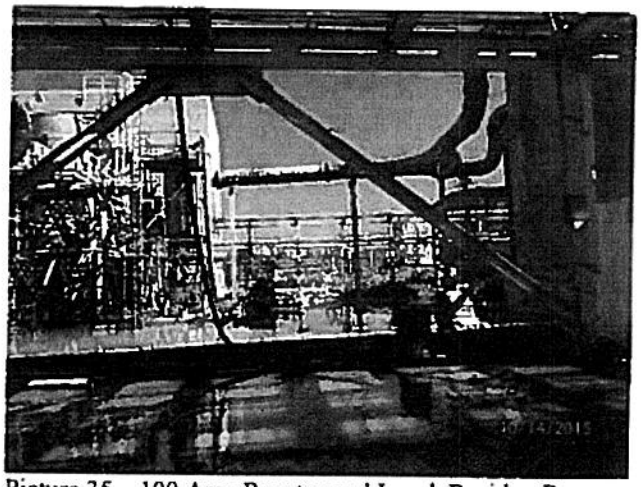
Picture 31 – 100 Area flooded from stopped drain

Picture 32 – 100 Area flooded from stopped drain

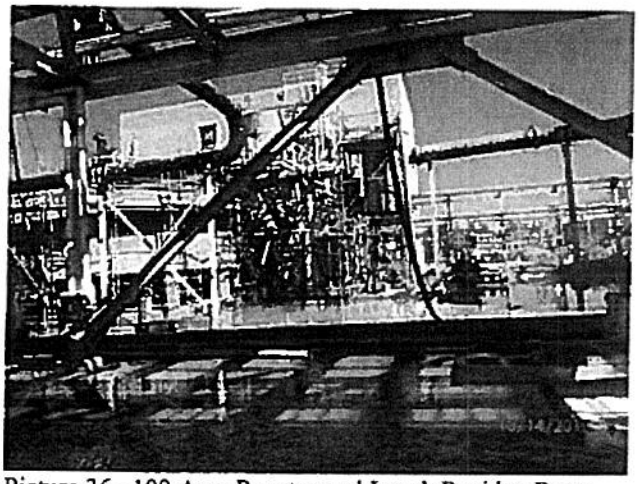
Picture 33 – 100 Area flooded from stopped drain



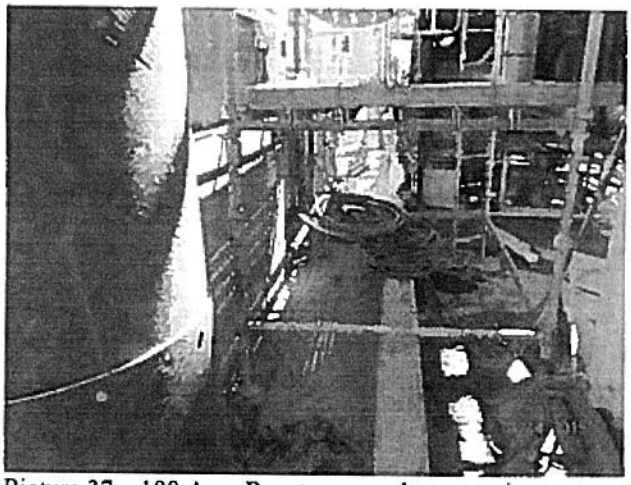
Picture 34 – 100 Area flooded from stopped drain



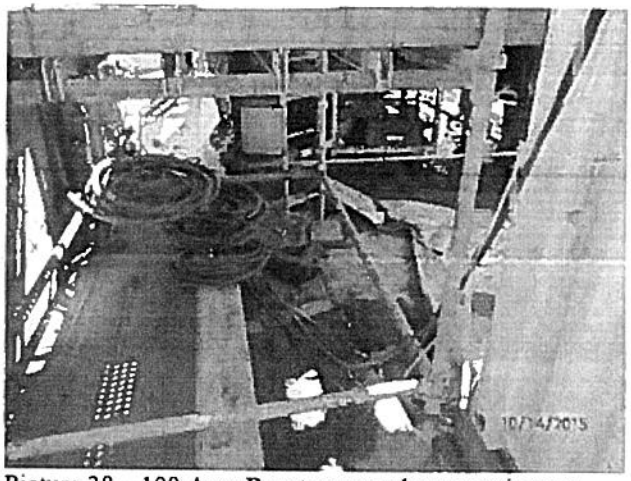
Picture 35 – 100 Area Reactor and Leach Residue Press secondary containments with rainwater and leach residue



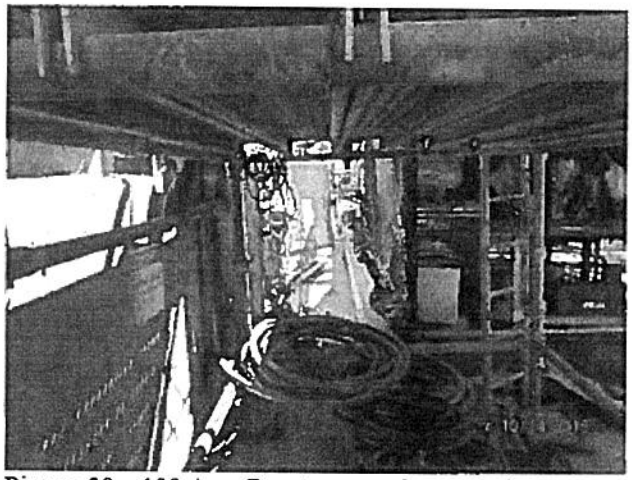
Picture 36 –100 Area Reactor and Leach Residue Press secondary containments with rainwater and leach residue



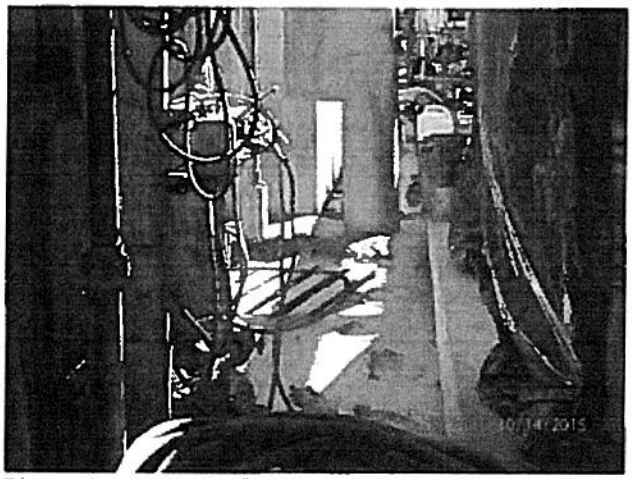
Picture 37 – 100 Area Reactor secondary containment with accumulated leach residue



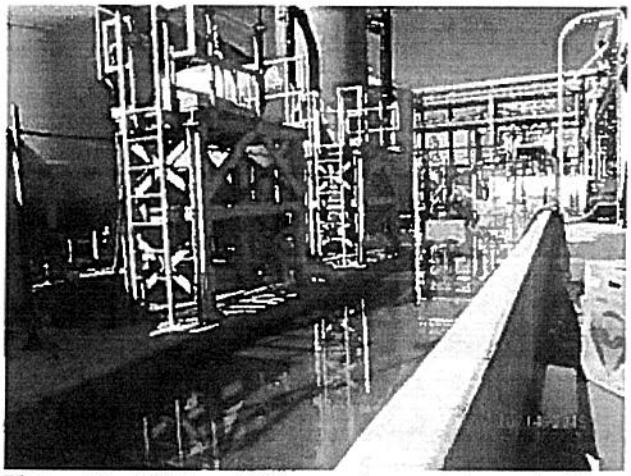
Picture 38 – 100 Area Reactor secondary containment with accumulated leach residue



Picture 39 – 100 Area Reactor secondary containment with accumulated leach residue

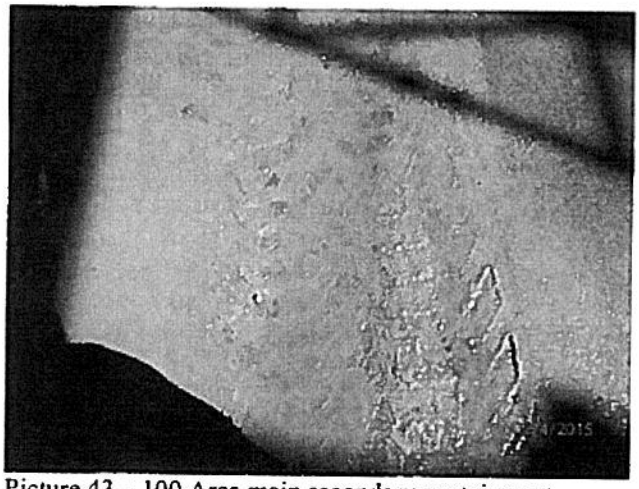


Picture 40 – 100 Area Reactor secondary containment with accumulated leach residue

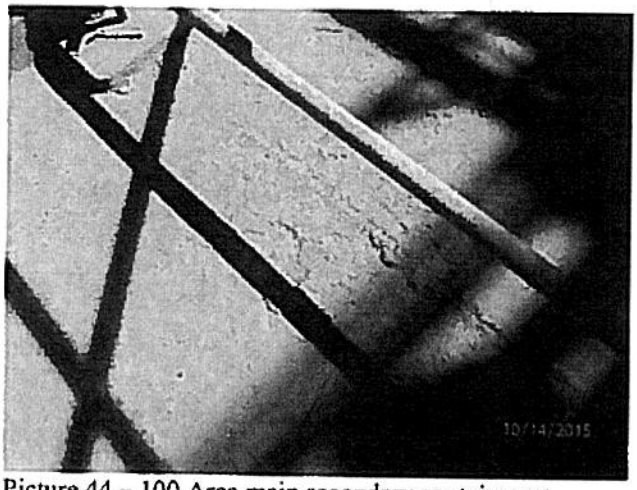


Picture 41 – 100 Area PLS secondary containment with rainwater

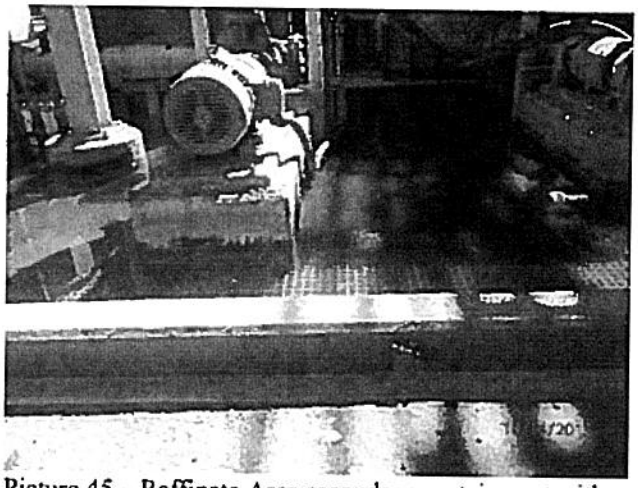
Picture 42 – 100 Area main secondary containment covered in unknown dust and mud



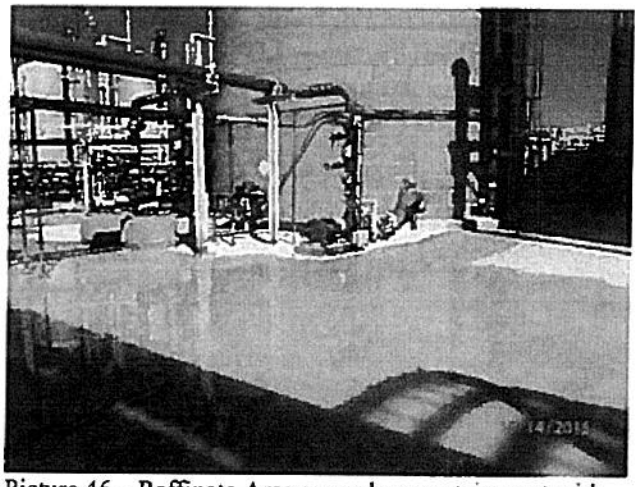
Picture 43 – 100 Area main secondary containment covered in unknown dust and mud



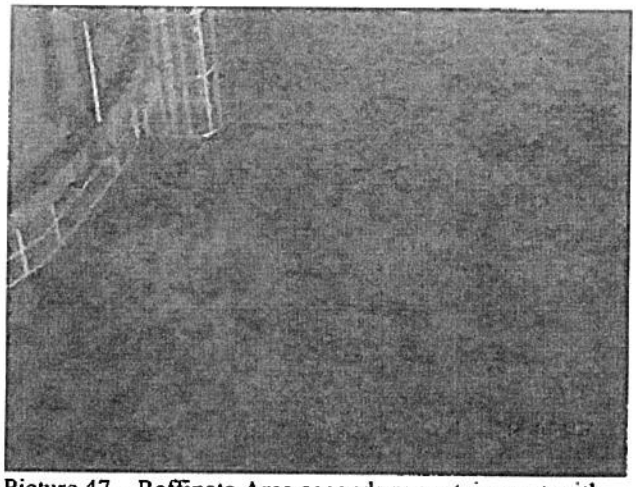
Picture 44 – 100 Area main secondary containment covered in unknown dust and mud



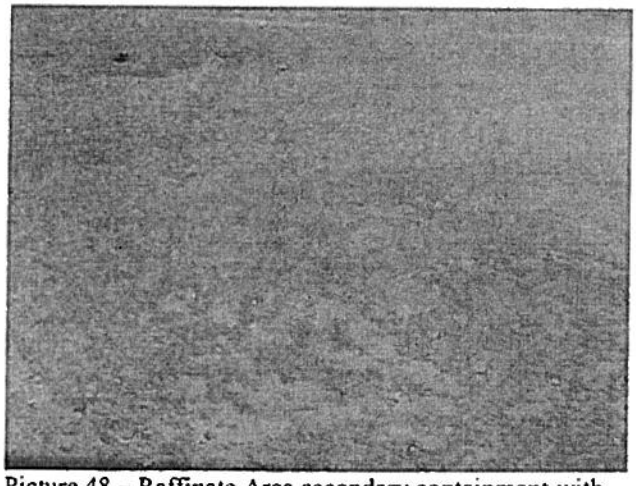
Picture 45 – Raffinate Area secondary containment with rainwater



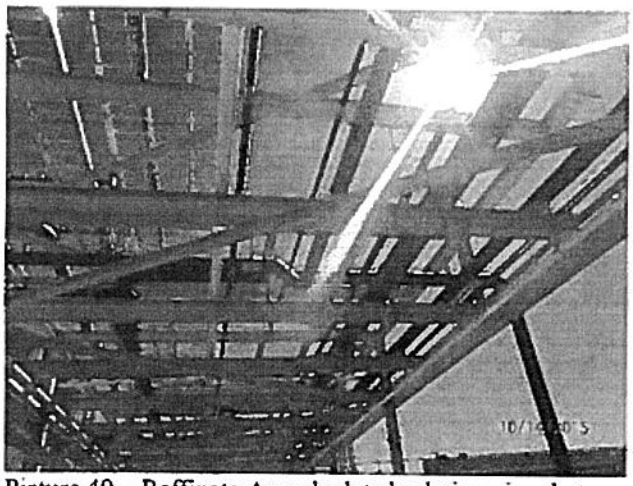
Picture 46 – Raffinate Area secondary containment with rainwater



Picture 47 – Raffinate Area secondary containment with etched concrete under rainwater

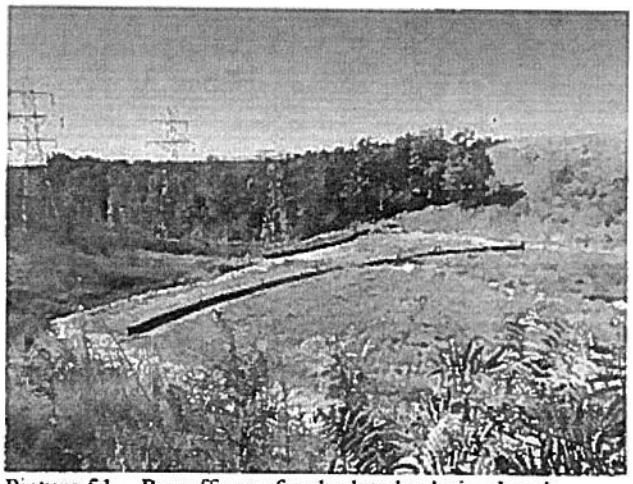


Picture 48 – Raffinate Area secondary containment with etched concrete under rainwater

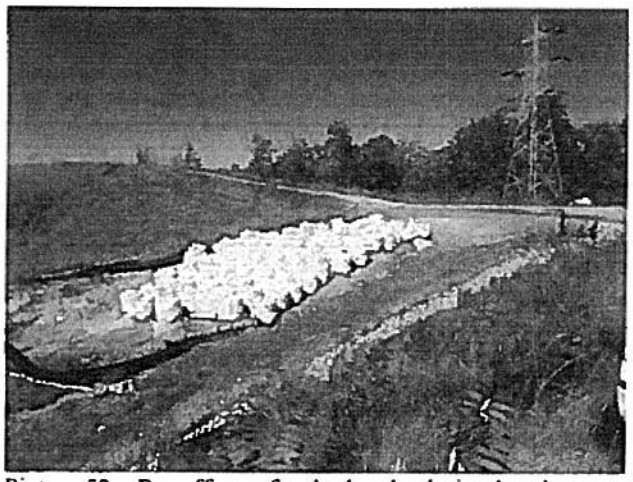


Picture 49 – Raffinate Area depleted solution pipe that was broken in May 2015

Picture 50 – New berm wall installed after depleted solution break

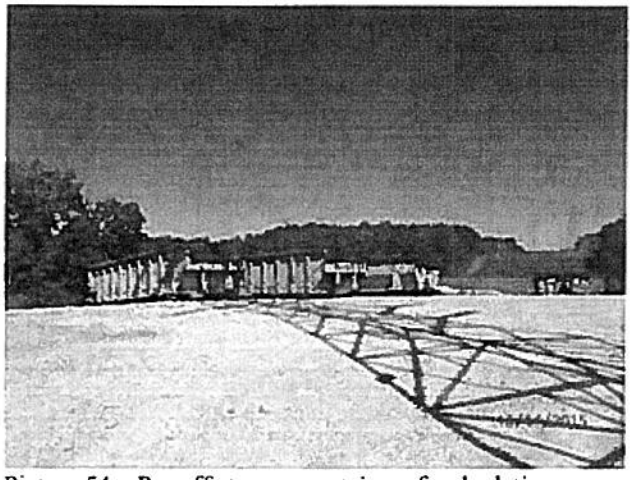


Picture 51 – Runoff area for depleted solution break

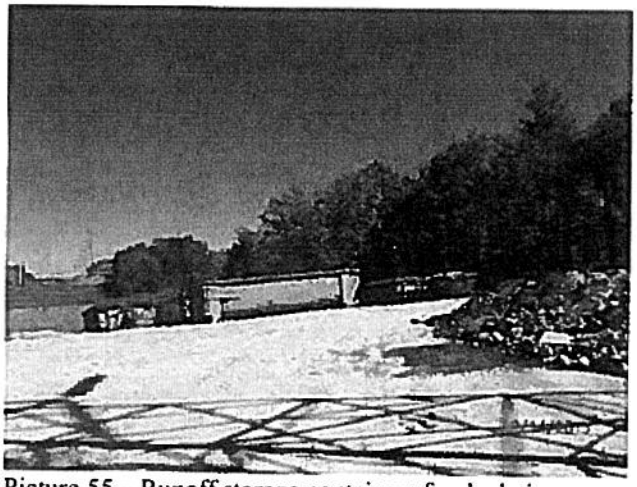


Picture 52 – Runoff area for depleted solution break

Picture 53 – Runoff storage containers for depletion solution break

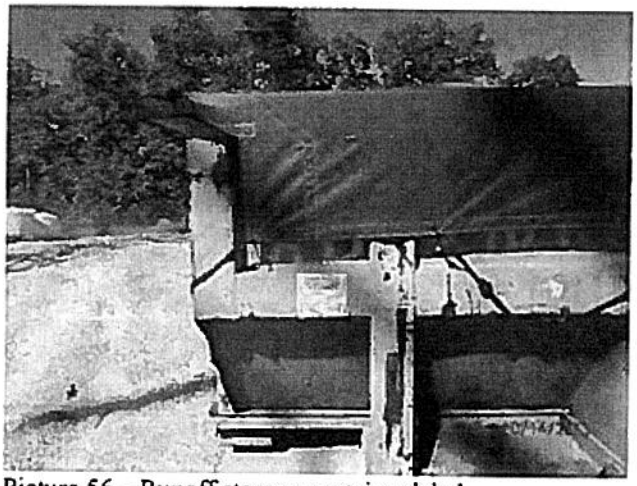


Picture 54 – Runoff storage containers for depletion solution break

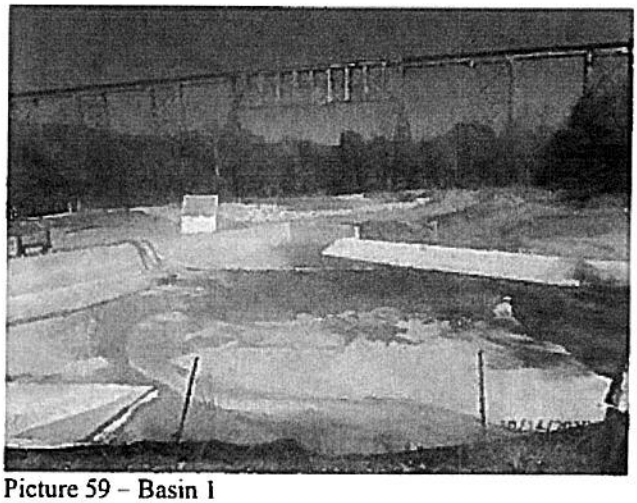


Picture 55 – Runoff storage containers for depletion solution break

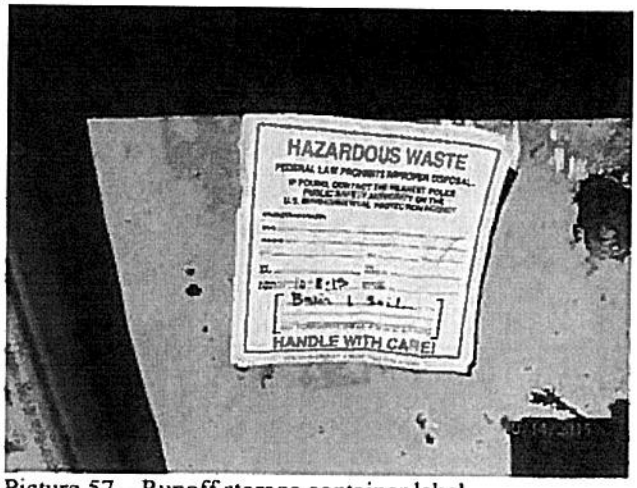
Picture 58 – Runoff storage container label



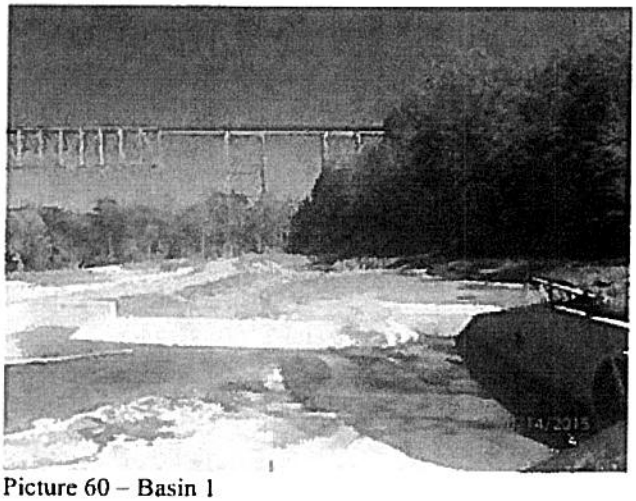
Picture 56 – Runoff storage container label



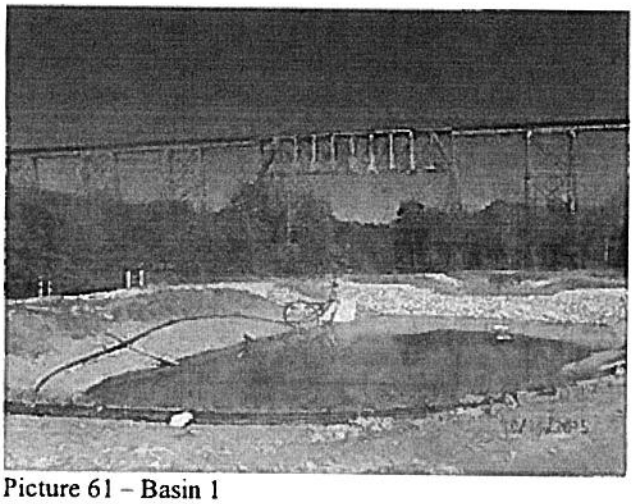
Picture 59 – Basin 1



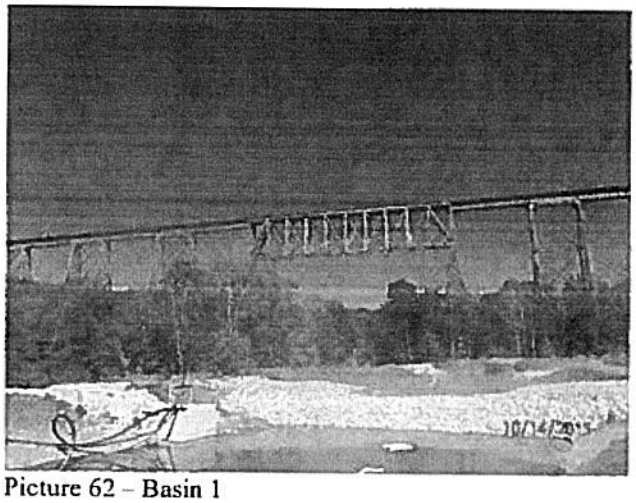
Picture 57 – Runoff storage container label



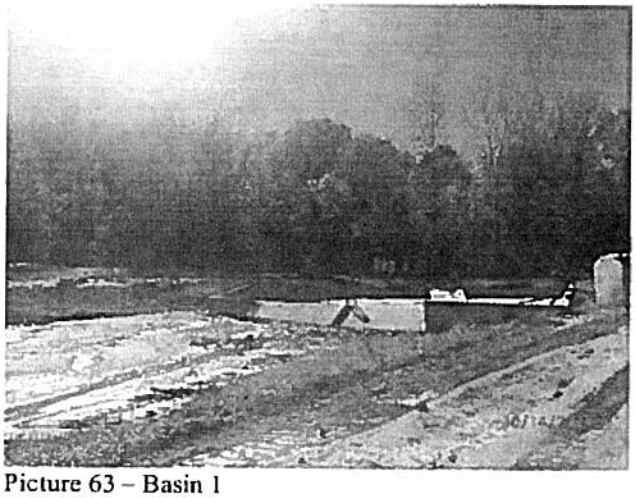
Picture 60 – Basin 1



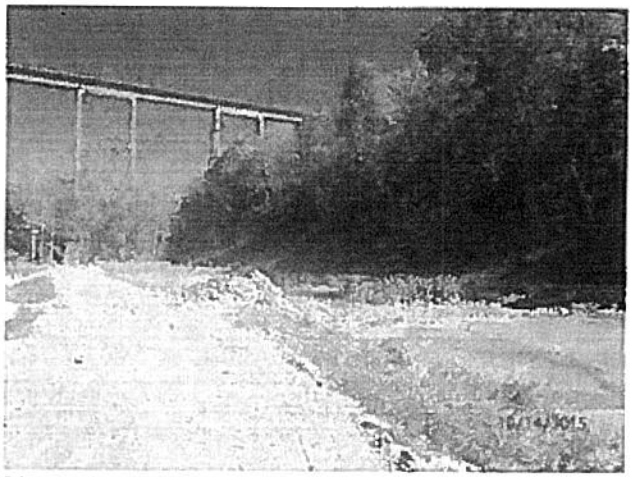
Picture 61 – Basin 1



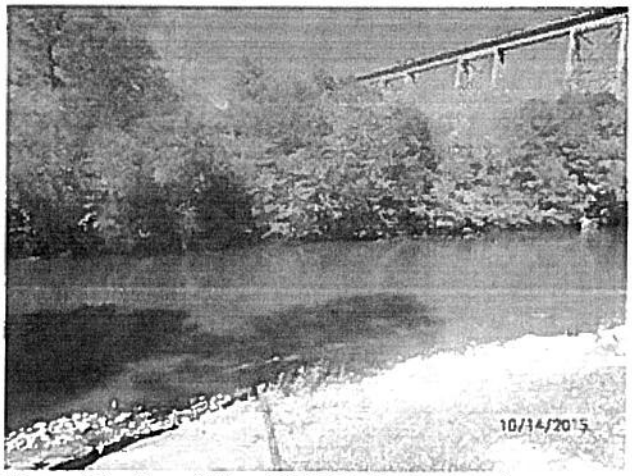
Picture 62 – Basin 1



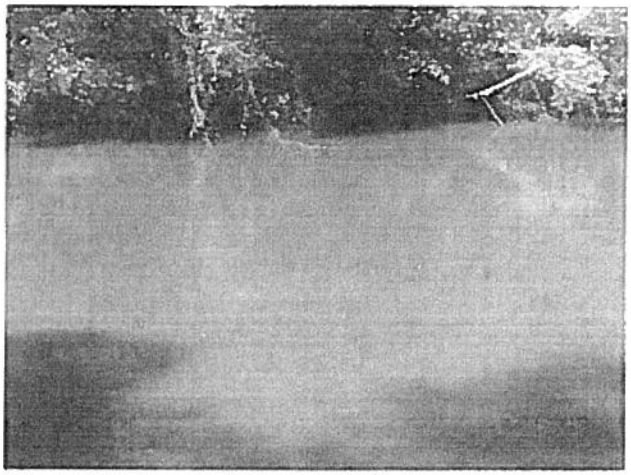
Picture 63 – Basin 1



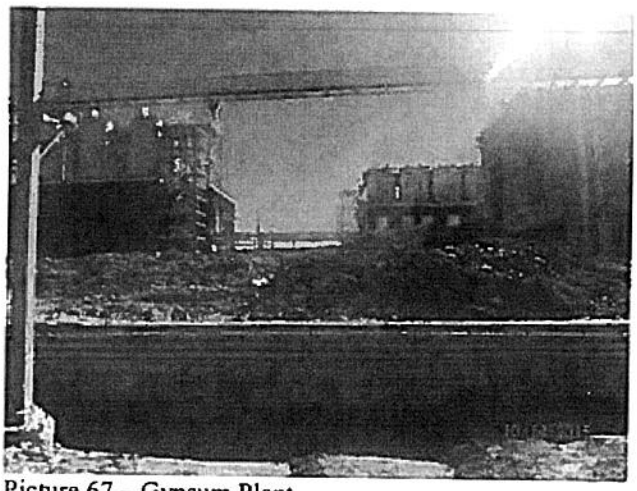
Picture 64 – Basin 1



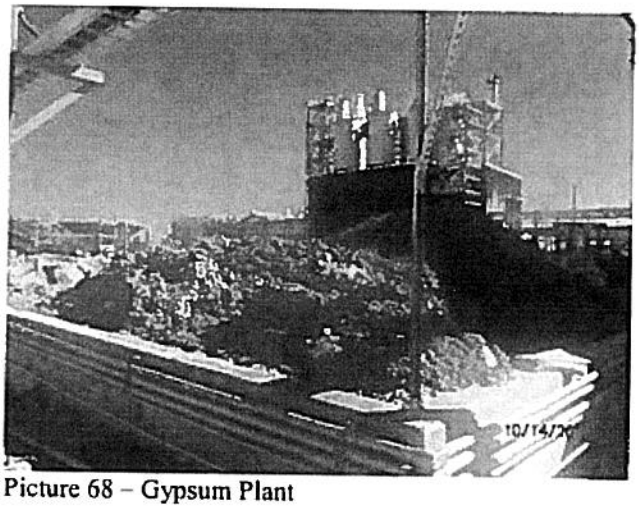
Picture 65 – Broad River NPDES discharge point



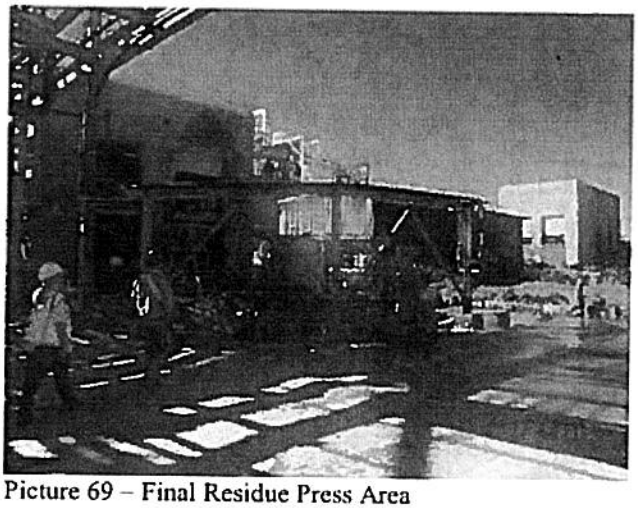
Picture 66 – Broad River NPDES discharge point



Picture 67 – Gypsum Plant

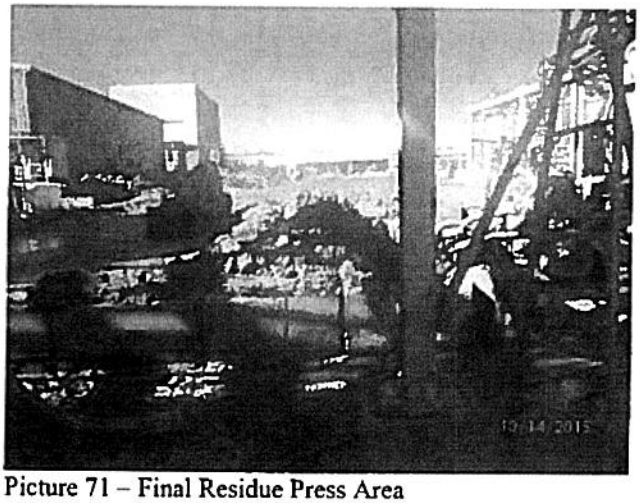


Picture 68 – Gypsum Plant



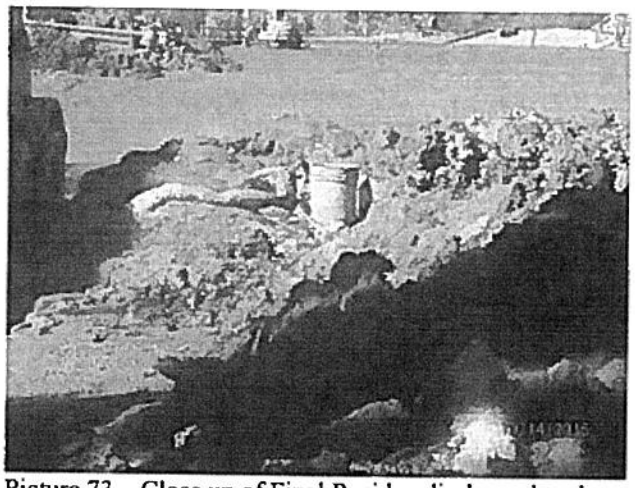
Picture 69 – Final Residue Press Area

Picture 70 – Final Residue Press Area



Picture 71 – Final Residue Press Area

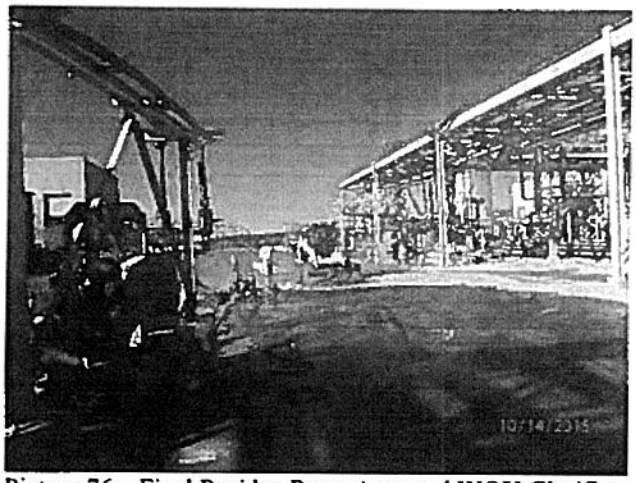
Picture 72 – Close up of Final Residue discharged to the ground



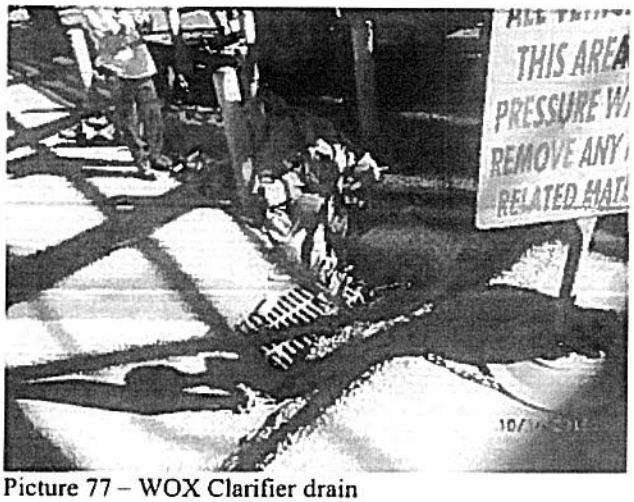
Picture 73 – Close up of Final Residue discharged to the ground

Picture 74 – Close up of Final Residue discharged to the ground

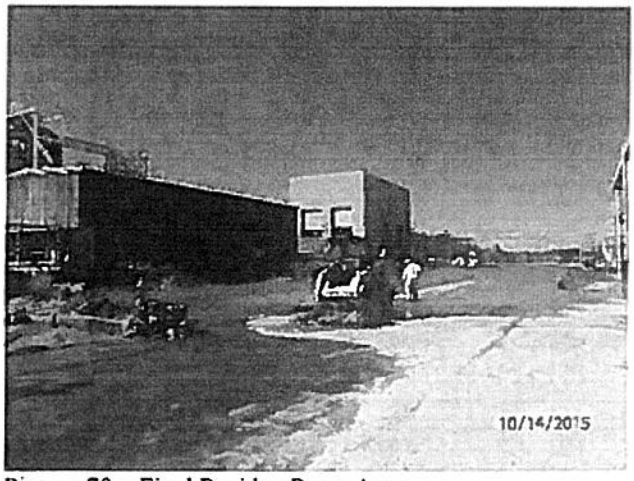
Picture 75 – Final Residue Press Building



Picture 76 – Final Residue Press Area and WOX Clarifier

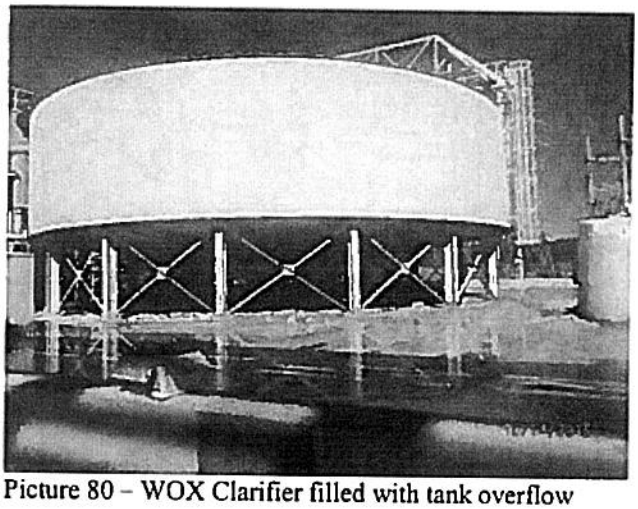


Picture 77 – WOX Clarifier drain

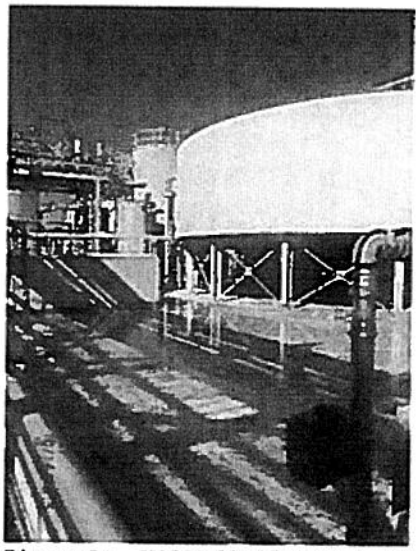


Picture 78 – Final Residue Press Area

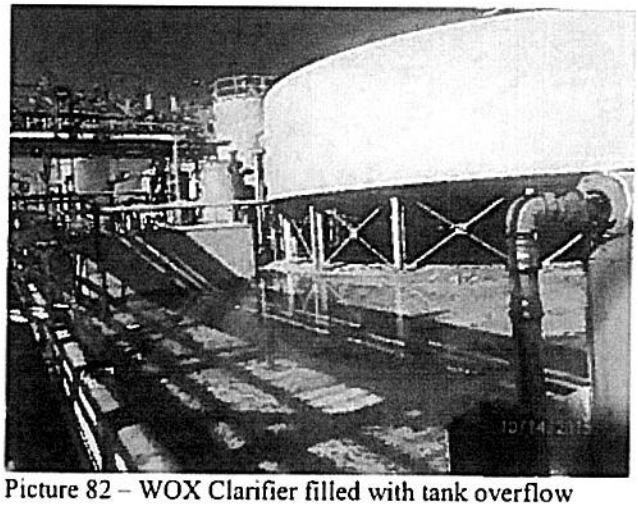
Picture 79 – WOX Clarifier residual from full basin tank overflow



Picture 80 – WOX Clarifier filled with tank overflow

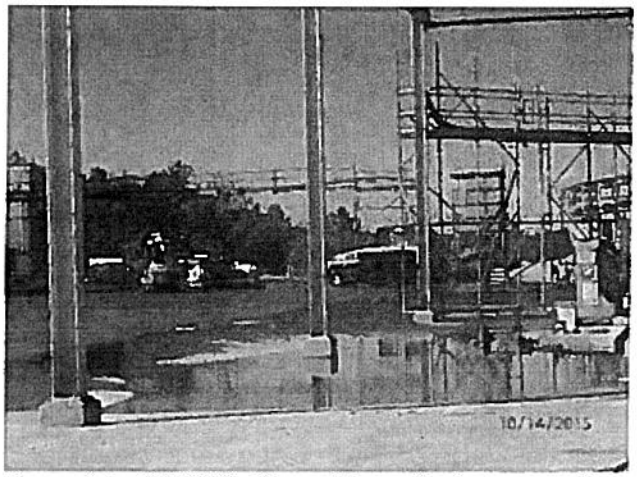


Picture 81 – WOX Clarifier filled with tank overflow

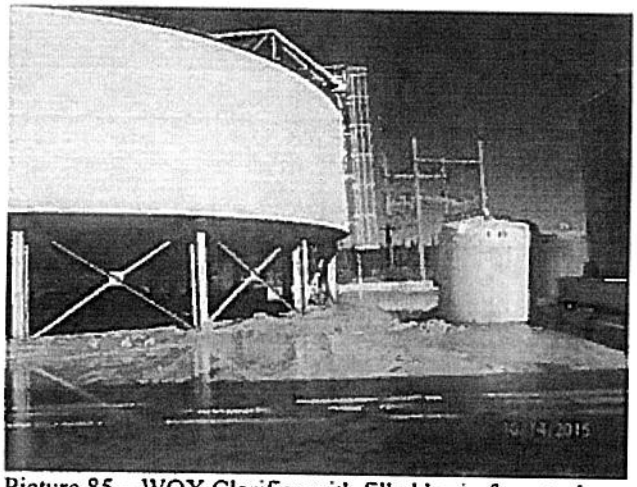


Picture 82 – WOX Clarifier filled with tank overflow

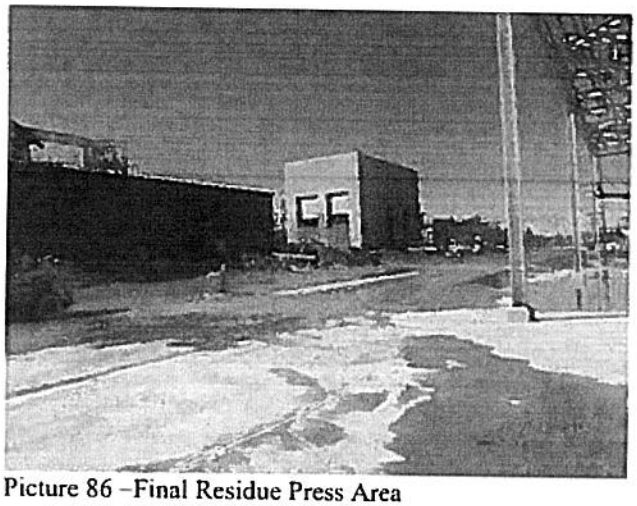
Picture 83 –WOX Clarifier residue on the ground outside the secondary containment



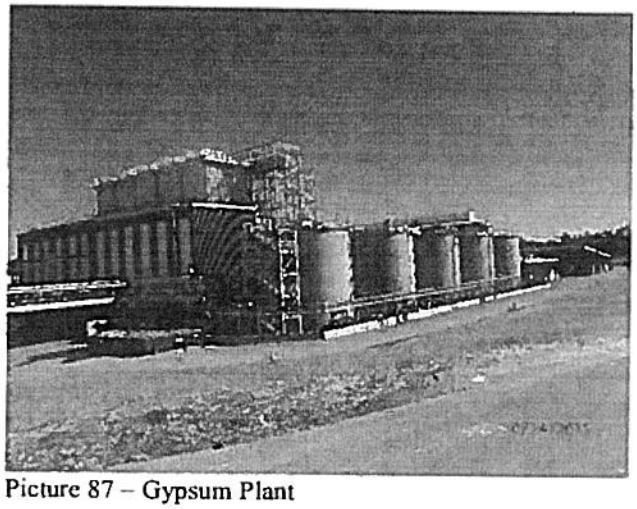
Picture 84 – WOX Clarifier residue and rainwater on the ground outside the secondary containment



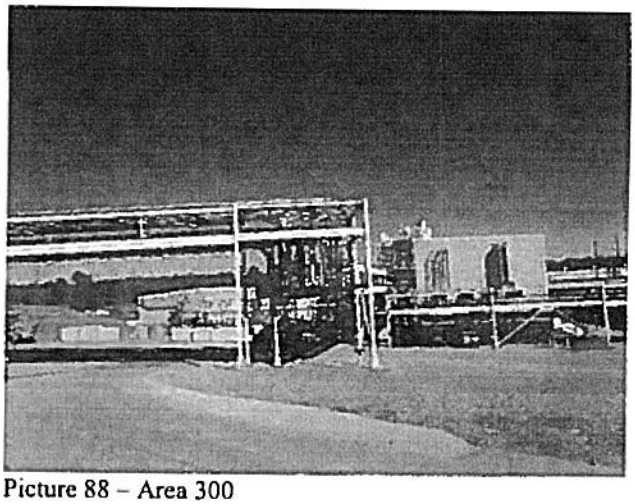
Picture 85 – WOX Clarifier with filled basin from tank overflow



Picture 86 –Final Residue Press Area

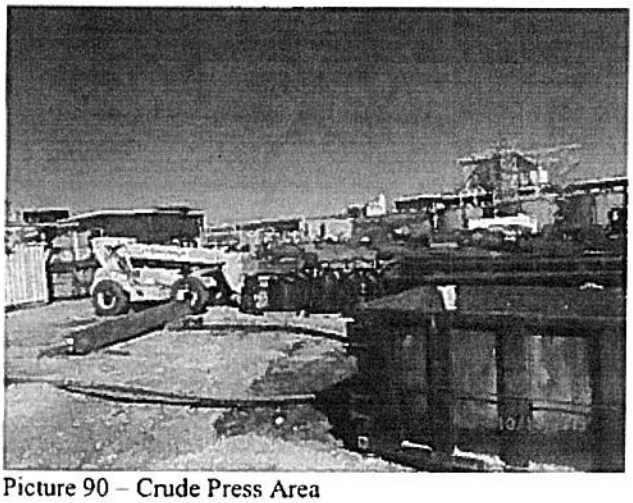


Picture 87 – Gypsum Plant

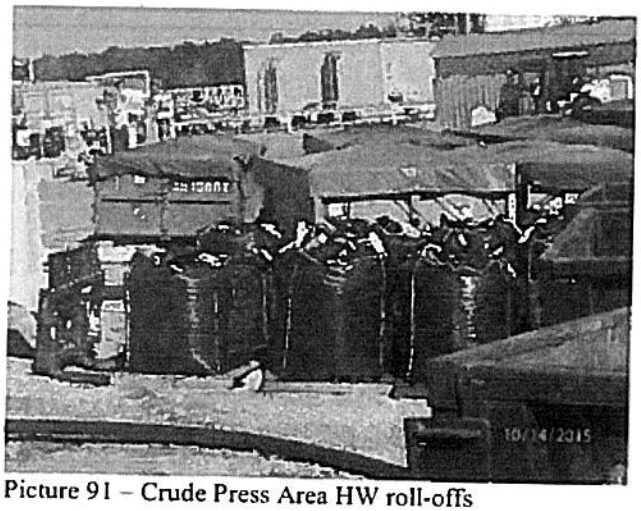


Picture 88 – Area 300

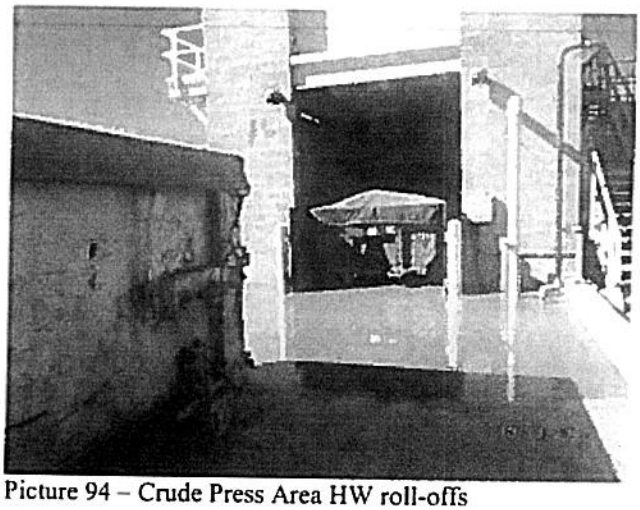
Picture 89 – Area 300



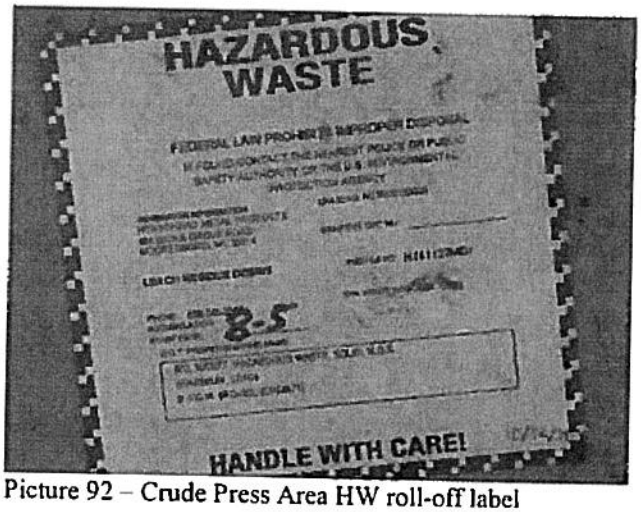
Picture 90 – Crude Press Area



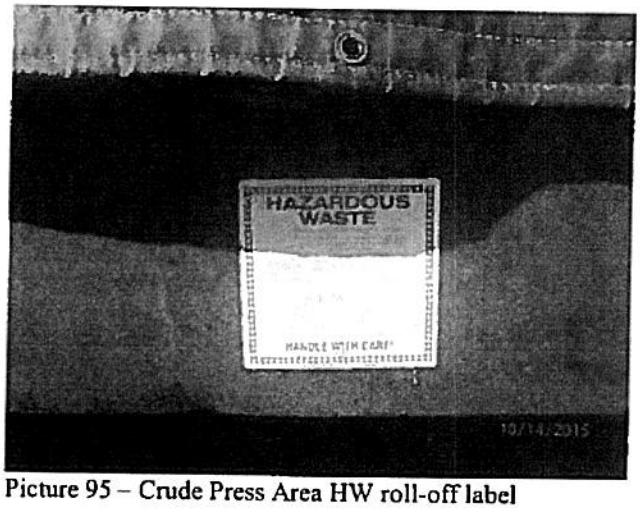
Picture 91 – Crude Press Area HW roll-offs



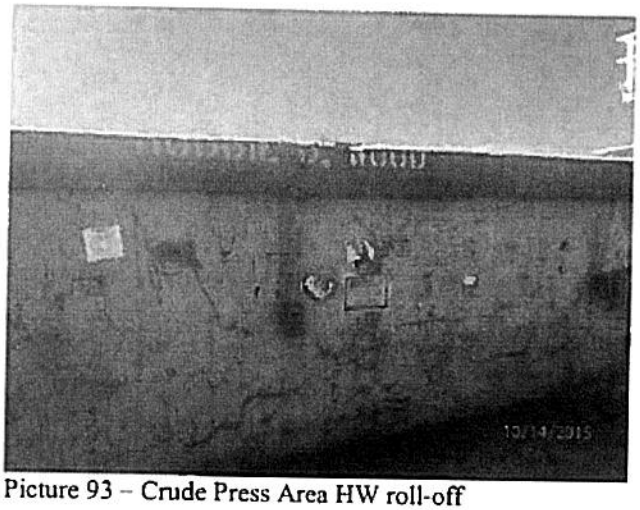
Picture 94 – Crude Press Area HW roll-offs



Picture 92 – Crude Press Area HW roll-off label

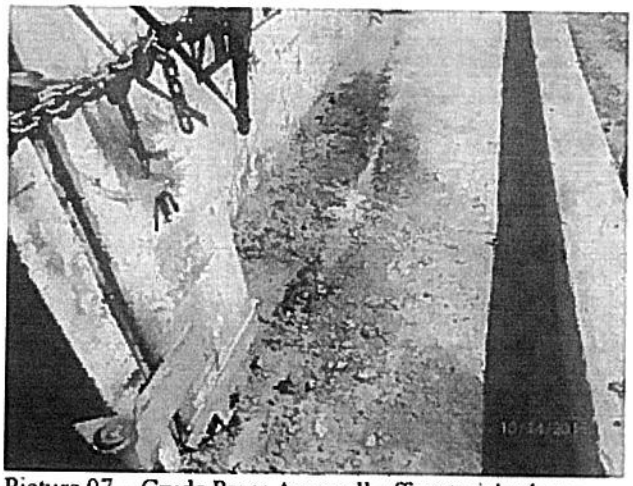


Picture 95 – Crude Press Area HW roll-off label



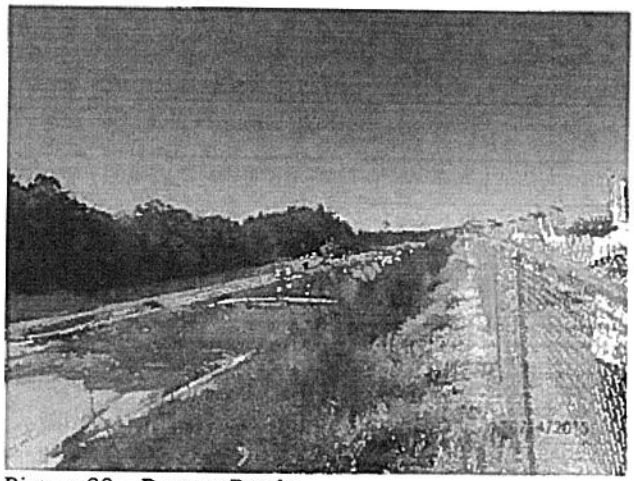
Picture 93 – Crude Press Area HW roll-off

Picture 96 – Crude Press Area HW roll-off label

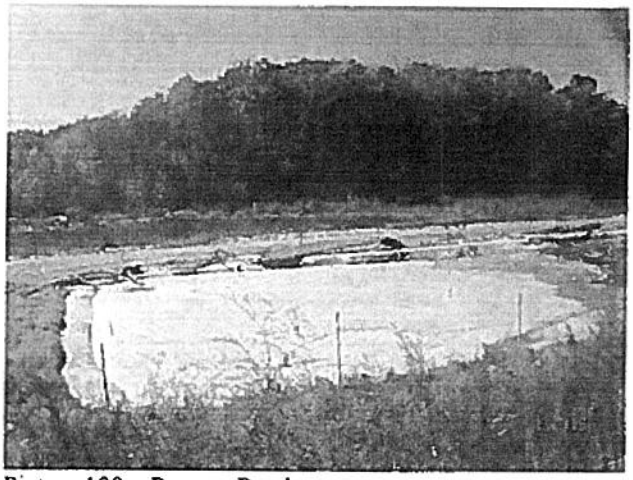


Picture 97 – Crude Press Area roll-off material release on the ground

Picture 98 – Crude Press Roll-off material released on the ground



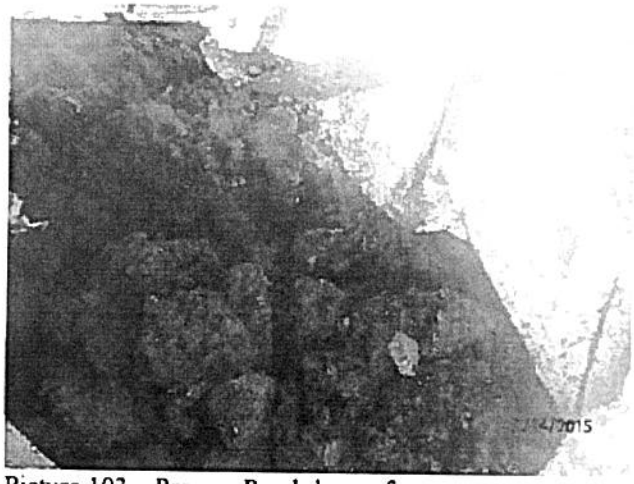
Picture 99 – Process Ponds



Picture 100 – Process Ponds

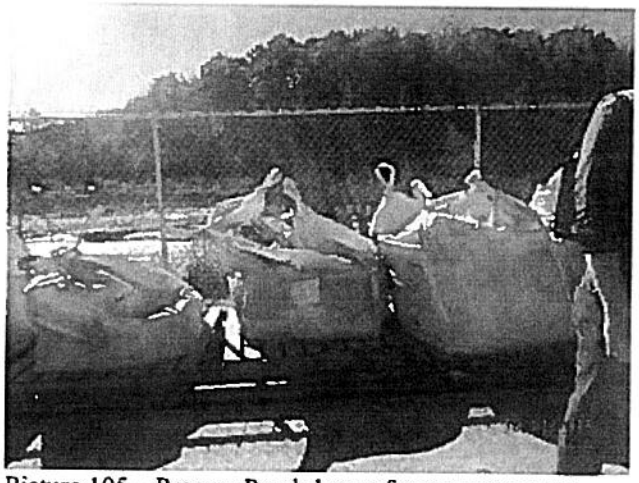
Picture 101 – Process Ponds

Picture 102 – Process Ponds

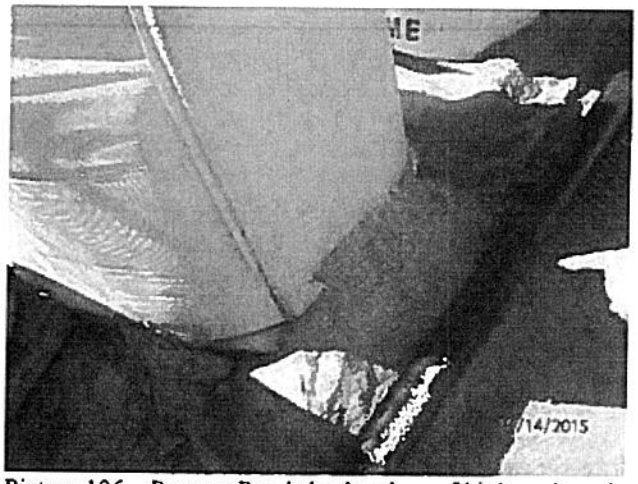


Picture 103 – Process Ponds bags of spent manganese

Picture 104 – Process Ponds bags of spent manganese

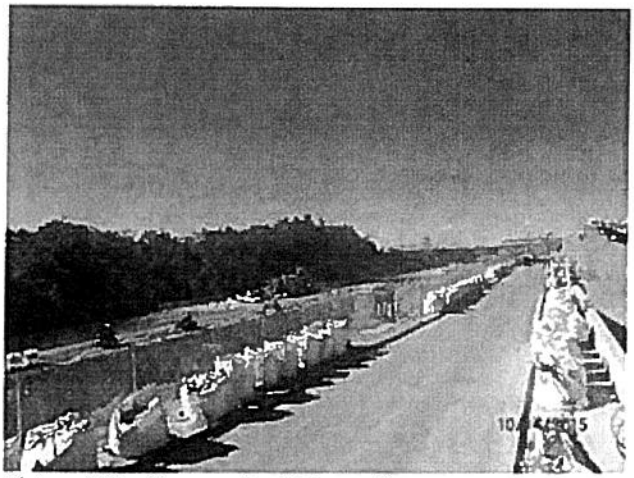


Picture 105 – Process Ponds bags of spent manganese

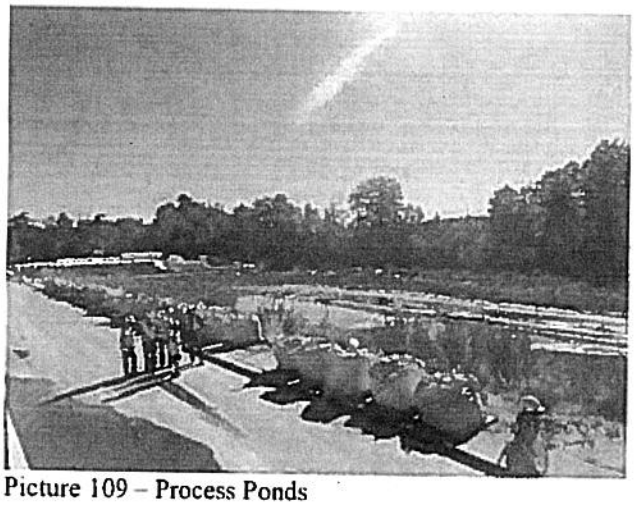


Picture 106 – Process Ponds broken bag of high-end sand

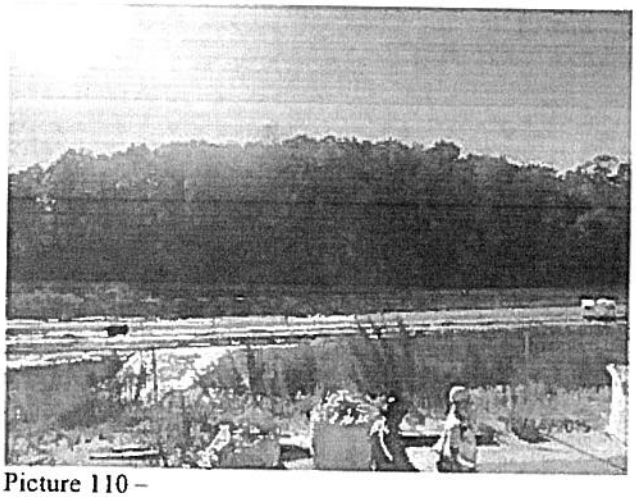
Picture 107 – Process Ponds broken bag of high-end sand



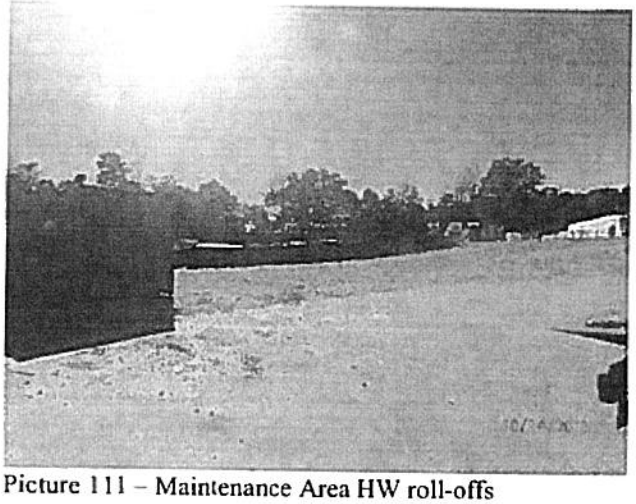
Picture 108 – Process Ponds bags of manganese



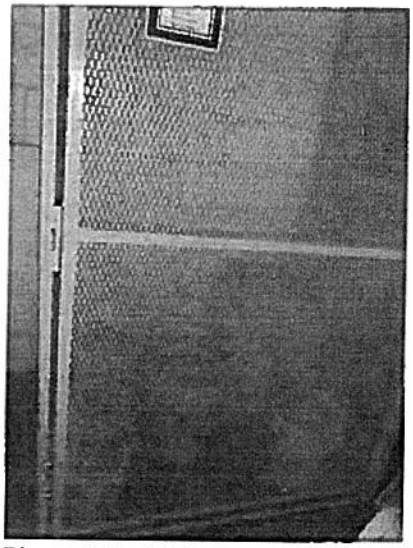
Picture 109 – Process Ponds



Picture 110 –



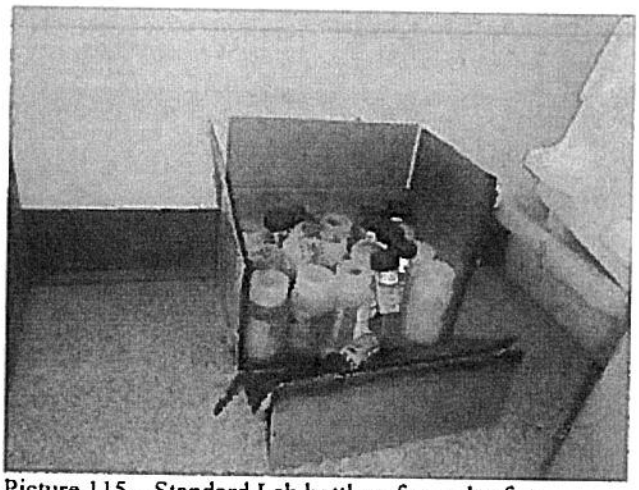
Picture 111 – Maintenance Area HW roll-offs



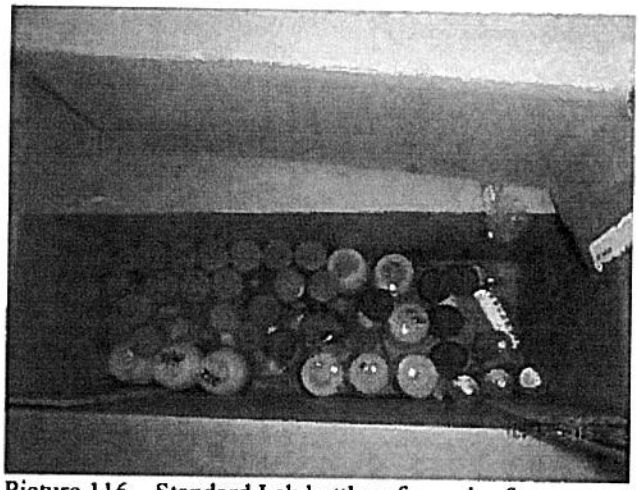
Picture 112 – Maintenance Shop UW storage

Picture 113 – Maintenance Shop UW storge

Picture 114 – Standard Lab unknown bottles for recycling



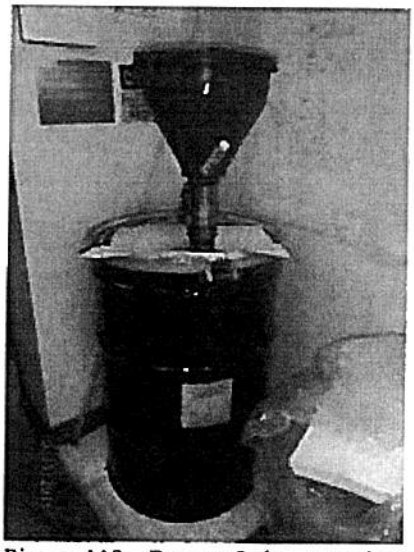
Picture 115 – Standard Lab bottles of samples for recycling



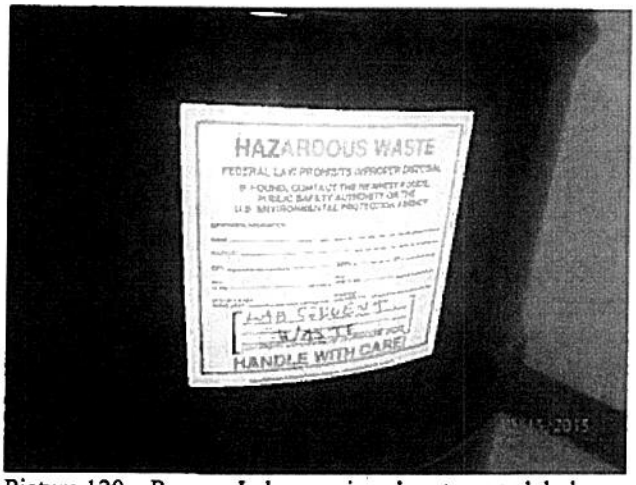
Picture 116 – Standard Lab bottles of samples for recycling

Picture 117 – Standard Lab bottles of samples for recycling

Picture 118 – Spectrometer Lab used oil containers

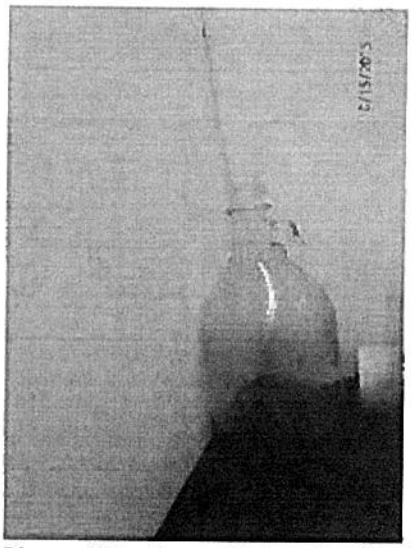


Picture 119 – Process Lab – organic solvent waste

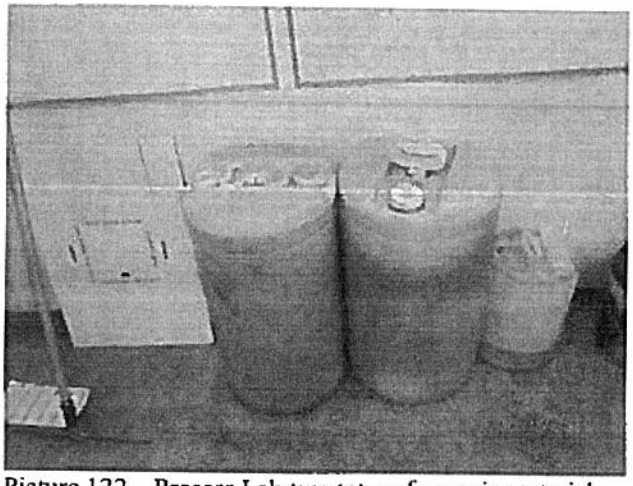


Picture 120 – Process Lab organic solvent waste label

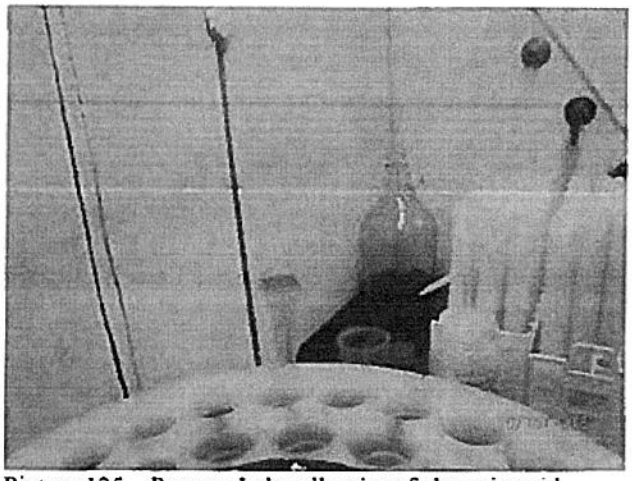
Picture 121 – Process Lab containers of diluent waste to be recycled in process



Picture 124 – Process Lab gallon jar of chromic acid waste open in fume hood

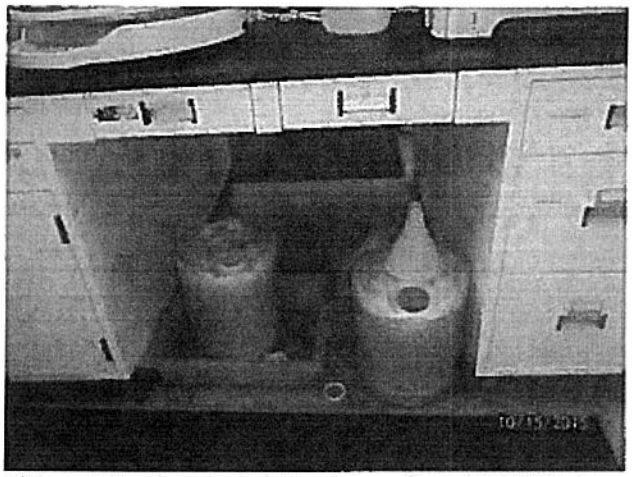


Picture 122 – Process Lab two totes of organic material samples to be recycled in process

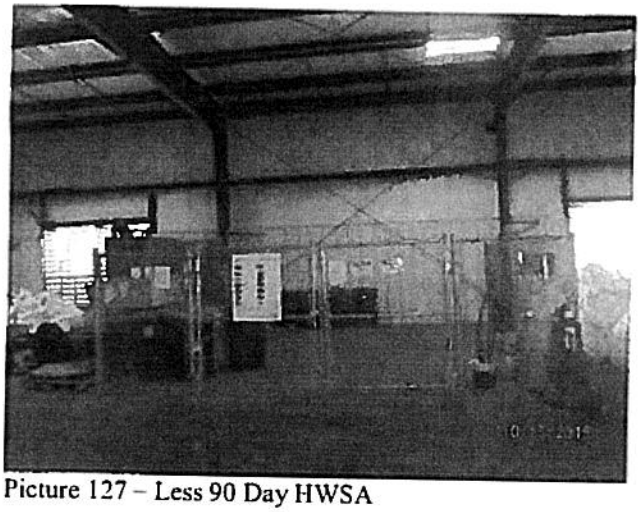


Picture 125 – Process Lab gallon jar of chromic acid waste open in fume hood

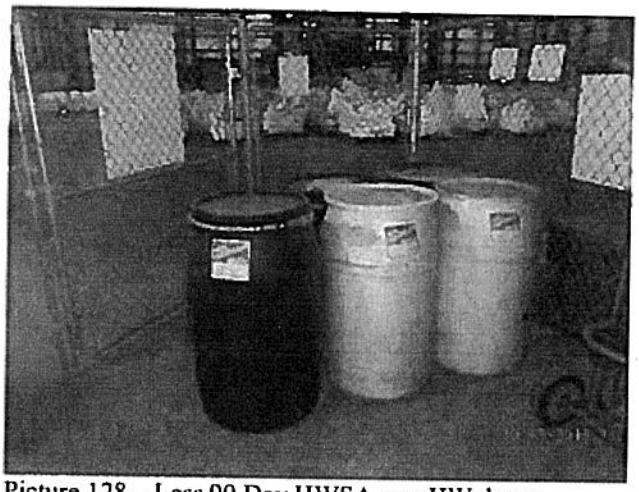
Picture 123 – Process Lab jar of spent DEPHA



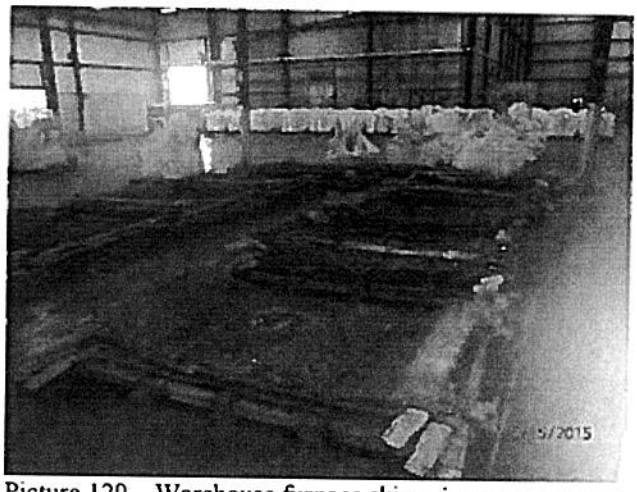
Picture 126 – Process Lab two totes of spent DEPHA to be recycled



Picture 127 – Less 90 Day HWSA



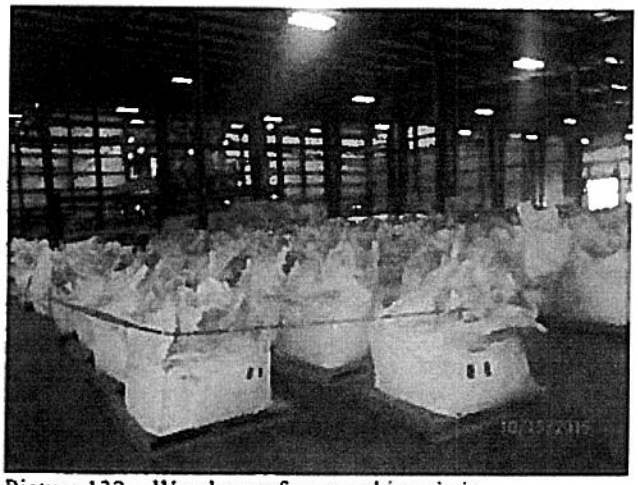
Picture 128 – Less 90 Day HWSA non-HW drums



Picture 129 – Warehouse furnace skimmings

Picture 130 – Warehouse furnace skimmings

Picture 131 – Warehouse furnace skimmings label



Picture 132 – Warehouse furnace skimmings

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OCT 14 2014

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Jim Harris
Environmental Manager
Horsehead Metal Products, Inc.
484 Hicks Grove Road
Mooresboro, North Carolina 28533

SUBJ: RCRA Compliance Evaluation Inspection
Horsehead Metal Products, Inc.
EPA ID# NCR000159038

Dear Mr. Harris:

Enclosed is a copy of the U.S. Environmental Protection Agency inspection report documenting the results of the August 13, 2014, inspection of Horsehead Metal Products, Inc. located at 484 Hicks Grove Road in Mooresboro, North Carolina. This was an EPA compliance evaluation inspection (CEI) for the purpose of evaluating the facility's compliance with the applicable Resource Conservation and Recovery Act (RCRA) regulations.

Enclosed is the CEI report that documents apparent violations of RCRA. A copy of this report has been forwarded to the North Carolina Department of Environment and Natural Resources (NCDENR).

If you have any questions regarding this matter, please contact Paula Whiting by phone at (404) 562-9277 or by email at whiting.paula@epa.gov.

Sincerely,

Nancy McKee
Chief, North Enforcement and Compliance Section
RCRA and OPA Enforcement and Compliance Branch

Enclosure

cc: Spring Allen, NCDENR (sent via e-mail)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OCT 14 2014

Julie Woosley, Chief
Hazardous Waste Section
North Carolina Department of Environment and Natural Resources
1646 Mail Service Center
217 West Jones Street
Raleigh, North Carolina 27699-1646

SUBJ: RCRA Compliance Evaluation Inspection
Horsehead Metal Products, Inc.
EPA ID# NCR000159038

Dear Ms. Woosley:

On August 13, 2014, a U.S. Environmental Protection Agency compliance evaluation inspection was conducted at Horsehead Metal Products, Inc. located in Mooresboro, North Carolina, to determine the facility's compliance status with the Resource Conservation and Recovery Act (RCRA).

Enclosed is the CEI report that documents apparent violations of RCRA. The EPA considers this facility to be a Secondary Violator.

If you have any questions regarding this matter, please contact Paula Whiting by phone at (404) 562-9277 or by email at whiting.paula@epa.gov.

Sincerely,

Nancy McKee
Chief, North Enforcement and Compliance Section
RCRA and OPA Enforcement and Compliance Branch

Enclosure

RCRA Inspection Report

1) Inspector and Author of the Report

Paula A. Whiting
Environmental Engineer
RCRA and OPA Enforcement and Compliance Branch
US EPA Region 4 SNAFC – 10th Floor
61 Forsyth Street, SW
Atlanta, Georgia 30303
whiting.paula@epa.gov
(404) 562-9277

2) Facility Information

Horsehead Metal Products, Inc.
484 Hicks Grove Road
Mooresboro, North Carolina 28533
Rutherford County
EPA ID# NCR000159038

3) Responsible Official

Jim Harris, Environmental Manager

4) Inspection Participants

Jim Harris	Horsehead Metal Products, Inc.
Scott Hoenecke	Horsehead Metal Products, Inc.
Diego Rojas	Horsehead Metal Products, Inc.
Spring Allen	NCDENR
Brent Burch	NCDENR
Paula Whiting	US EPA Region 4

5) Date and Time of Inspection

August 13, 2014, at 8 a.m. EDT

6) Applicable Regulations

Resource Conservation and Recovery Act (RCRA), 42 U.S.C.A. §§ 6901 to 6992

Sections 3005 and 3007 of RCRA, 42 U.S.C.A. §§6925 and 6927

40 Code of Federal Regulations (C.F.R.) Parts 260-270, 273, and 279

Title 15A, Chapter 13, North Carolina Administrative Code (NCAC)

7) **Purpose of Inspection**

The purpose of this inspection was to conduct an unannounced RCRA compliance evaluation inspection (CEI) to determine the Horsehead Metal Products, Inc.'s (HHMP), EPA ID# NCR000159038, compliance with the applicable regulations.

8) **Facility Description**

Horsehead Metal Products, Inc., located in Mooresboro, North Carolina, is zinc and diversified metals production facility. This facility utilizes solvent extraction and electro-winning technology to selectively remove and refine valuable metals from electric arc furnace-based feed and other recycled materials into special high-grade zinc and other metal concentrates containing silver, copper and lead. Solvent extraction selectively extracts zinc from a solution containing the multiple constituents typical of Horsehead's recycled feedstock. This facility will produce special high-grade (SHG) zinc and continuous-galvanizing grade (CGG) in addition to the Prime Western (PW) grade that HHMP currently produces.

The facility currently has five active production areas, one production area being constructed and a reagent storage area. The Area 100 (leaching) takes the waelz oxide (WOX) dust and washes it with bleed treatment solution from Area 300 to remove chloride and potassium. Then the slurry is fed into the Leaching unit to dissolve most of the contained zinc in the WOX. The purified aqueous solution called pregnant leaching solution (PLS) is heated and pumped to the Area 200 (solvent extraction).

The Area 200 which produces ultra-high quality zinc loaded electrolyte is divided in to four subsections: extraction, washing, stripping and depletion. The extraction stage transfers the zinc from the PLS to a ligand exchange reagent. The washing stage removes impurities from the zinc loaded organic phase using physical and chemical washings. The stripping stage strips out the zinc content using an acidic aqueous solution. The depletion stage takes a small bleed from the slurry and treats it with gypsum precipitation, cementation and zinc depletion to reduce the amount of zinc and some of the impurities in the final liquid effluent. Depletion stage takes place in Area 300.

The Area 400 (electro-winning) produces zinc metal from the zinc-bearing solution (loaded electrolyte). Direct current is applied to the solution, so a deposit of zinc metal is grown from the electrolyte onto aluminum cathodes. The zinc plates are then mechanically stripped and sent to Area 500 melting. The zinc-depleted solution (spent electrolyte) is recycled to the Stripping unit in Area 200.

Area 500 (fumaces) consists of melting, alloying and casting using four induction furnaces and a casting operation.

Area 600 is the PLINT process which recovers lead and silver from the leaching (lead) residue. In this stage, lead and silver contained in the leaching residue is dissolved in a hot brine solution to obtain a solid residue free of lead and chlorides. This area is currently being constructed and is not in operation.

Area 700 is designated as an area for reagents preparation and distribution to the plant. This area is used for reagent storage, has two lime silos, six WOX silos, a soda ash silo and hydrated lime storage silo.

HHMP's most recent Hazardous Waste Generator Notification (EPA Form 8700-12) dated June 19, 2014, characterized the facility as a large quantity generator (LQG) of hazardous waste.

Currently, HHMP generates oils and lubricants, solvents and debris and waste rags as well as universal waste batteries, lamps and other wastes which include EPA Waste Codes D001, D002, D006, D008, D035, F003, and F005 wastes.

9) Previous Inspection History

On June 11, 2014, NCDENR conducted a compliance evaluation inspection based on a complaint and no apparent violations were found at the time of the inspection.

10) Findings

Upon arriving at the HHMP facility, the inspectors presented their credentials to the security guard and signed in. Mr. Jim Harris, Environmental Manager, HHMP, received the inspectors. The inspectors introduced themselves, showed their credentials, and explained the purpose of the visit. The inspectors then performed a walk-through inspection of the facility. Below is a description of the observations made during the walk-through.

10.1. WOX Unloading

The waelz oxide (WOX) dust is brought in via pressure differential railcars to the WOX unloading area (Pictures 1 and 3). This area consists of four converging rail lines that move the cars into the unloading area, and five rail lines used for storage of the incoming and outgoing railcars. At time of the inspection, the inspectors were not able to enter the WOX unloading area because railcars were being unloaded and the area had restricted access that requires respirators, Tyveks suits and gloves. The inspectors asked Mr. Harris if there were any known WOX releases from unloading, inside the WOX unloading building or on the rail lines. Mr. Harris stated there were no known releases from the railcars and that the only issue was cleaning the railcars inside the WOX unloading building. At the time of the inspection, incoming railcars had been stored on the rail lines for three weeks because the facility was not in operation.

The WOX is pneumatically loaded and stored in six white silos located next to the WOX unloading building (Picture 2). Lime for pH adjustment is also unloaded in this area and stored in a tall white silo besides the WOX silos. During the walkthrough of the WOX unloading area, the inspectors observed a release of lime from a blow out on the ground and around the rail line (Picture 4). The inspectors observed two stainless steel storage tanks in front of the silos filled with 93% sulfuric acid.

The inspectors passed through the 500 Area (furnace) and 400 Area (electro-winning (EW)). The inspectors observed stacks of zinc plates being dried prior to being placing in the furnace (Picture 5); five 385,000-gallon electrolyte storage tanks with high zinc concentrate mixed with sulfuric acid solution (Picture 6) and the furnace baghouses (Picture 7). Mr. Harris explained that

the zinc dust captured in the hoppers is put back into the process at the 100 Area to mix and create a zinc solution. The secondary containment wall was observed to be cracked and leaking (Pictures 8-9). Mr. Harris explained that the work orders for repairs were scheduled.

10.2. WOX Clarifiers

The WOX clarifiers mixes the WOX with water and sulfuric acid. The inspectors observed the clarifiers were open to the elements. The clarifiers and two stainless steel acid tanks were inside the secondary containment area (Pictures 10-11). At the time of the inspection, the gypsum clarifier (Pictures 17, 23), located downhill from the WOX clarifier, were experiencing blockage problems and were being pumped into the WOX clarifier secondary containment (Pictures 12-13). The inspectors observed that the secondary containment walls of the WOX clarifier had leaking cracks waiting to be repaired and areas that were newly resealed (Pictures 14-16). Mr. Harris explained that the secondary containment was designed to be a 10 to 14 day storage for process use.

10.3. Area 100 - Leaching

The inspection of the Area 100 started at 100A - final zinc discharge building (Picture 22). This building collects the high zinc residue from the process, drops it onto the ground and the residue is frontloaded into piles in the secondary containment/runoff area (Pictures 18, 21). The building was originally designed to drop the residue into the roll-offs but the chutes did not properly align to deposit the residue into the roll-offs, so the roll-offs were removed. Once the high zinc residue is frontloaded into roll-offs, the containers are shipped to Horsehead in Palmerton, PA.

The Leaching Area contained a six-pack of reactors and a clarifier which are the core of the process. At the time of the inspection, Reactors A, B and E were down due to impellor failure because the interior coating had peeled off. The WOX mixture, known as the leaching slurry, added to the reactors from the silos were released to the secondary containment. The inspectors observed that the leaching slurry had dried into a thick and cracked mud and was being walked through by the employees. Leaching slurry residue was seen on the outside of the reactor tanks, on the top of the reactor secondary containment walls, and inside the 100 Area secondary containment (Pictures 24-34).

NCDENR recommended that the HHMP use at least one of the reactor tanks as backup for sudden releases and storage of the leaching slurry. The inspectors also recommended that the leaching slurry already released and stored into the secondary containment be cleaned out and stored into roll-offs and/or containers, which would allow HHMP to pump the slurry back into the reactor tanks. The inspectors understand that HHMP considers the leaching slurry to be a "product-in-process". However the slurry release had been stored in the reactor secondary containment for three weeks, there were footprints from employees and contractors walking through the slurry and the slurry residue was observed outside the reactor secondary containment walls. The EPA advised Mr. Harris and Mr. Scott Hoenecke, Operations Manager, that the leaching slurry contained hazardous constituents (including lead, cadmium and chromium) and releasing the slurry into the secondary containment was not considered to be in-process or to be properly stored and/or contained. The EPA recommends that the slurry be stored in appropriate containers until such time that it can be used in the process.

The reactor clarifier, also located in the same secondary containment as the reactor tanks, was observed to have slurry stains down the side (Pictures 35-36). Mr. Hoenecke explained that the

process causes the slurry to foam. When the slurry is sent to the open top clarifier, the foam overflows the sides of the clarifier and into the secondary containment.

Across from the six-pack reactors was the pregnant liquor solution (PLS) area. The PLS area contained five tanks with sand filters (Pictures 37-38). The PLS process exchanges sulfuric acid for zinc raffinate in a continuous loop. At the time of the inspection, the inspectors observed the PLS secondary containment filled with water and slurry. Mr. Harris and Mr. Hoenecke explained that when the clarifier and reactors shutdown the excess slurry was sent to the PLS secondary containment area. The inspectors also observed white calcium and zinc material floating on top of the water. The EPA again expressed concern for the storage of the WOX slurry.

10.4. Area 200 – Solvent Extraction

The Area 200 contained the processes for zinc electrolyte solution phase separation (Picture 39). The inspectors observed black tanks used to separate water from the zinc, acid and organic solvent solution. Behind the tanks were the process ponds, a maintenance pond, and the West Storm Water Pond (Pictures 40-43). Mr. Harris explained that the zinc raffinate goes, via a green pipe, into the open process ponds. Next was a maintenance pond with orange water. The last pond was the West Storm Water Pond with geese deterrents. This pond was lined for acidic organic solutions and contained acidic water with a red algae bloom. Mr. Hoenecke explained that this pond acts as a catchall from the process areas. The process water came from tank failures and coating failures in the process tanks.

NCDENR requested how much of the water had been placed back into the process. Mr. Hoenecke said that facility was able to reduce the storm waste pond storage from 68% to 54%, by processing the water through bleed treatment.

While leaving Area 200, the inspectors observed hazardous waste roll-offs (Pictures 44-55). The four blue roll-offs were observed labeled for "Carbon Filter Contents", closed and dated. Beside the roll-offs were seven carbon filter tanks with electrolyte filters. At the time of the inspection, the filter tanks were shut down for a first time emergency cleanout due to equipment failure. Two white super sacks were observed in the secondary containment area of the carbon filter tanks. Mr. Harris was asked about the contents of the sacks but could not identify their source. Mr. Hoenecke later explained that the sacks were from carbon filter clean out and required discarding. The super sacks were open, unlabeled and not dated.

In front of the carbon filter tanks was a decontamination bay used for equipment clean out. At the time inspection, a pile of discarded carbon from the carbon filter tanks were inside the bay waiting to be frontloaded into roll-offs. Mr. Harris explained that the discarded carbon had a sample tested using the toxicity characteristic leaching procedure (TCLP). The discarded carbon had a TCLP result of 6.5 ppm of lead which exceeded the regulatory limit of 5.0 mg/L. Therefore, the discarded carbon was uncontained, unlabeled and undated hazardous waste.

Horsehead Metal Products, Inc. is in apparent violation of 15A NCAC 13A.0107 [40 C.F.R. § 265.173(a)] as referenced in 40 C.F.R. § 262.34(a)(1)(i)], which states, except as provided in paragraphs (d), (e), and (f) of this section, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that the waste is placed in containers and the generator complies with the applicable requirements of subpart I of part 265 of this chapter in such that a container holding

hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

Horsehead Metal Products, Inc. is in apparent violation of 15A NCAC 13A.0107 [40 C.F.R. § 262.34(a)(2) and (a)(3)]. Except as provided in paragraphs (d), (e), and (f) of this section, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that the date upon which each period of accumulation begins is clearly marked and visible for inspection on each container; and while being accumulated on-site, each container and tank is labeled or marked clearly with the words, "Hazardous Waste".

10.5. Area 400 – Electro-winning

The inspectors were joined by Mr. Diego Rojas, the Electro-winning Supervisor, for the tour of Area 400. Mr. Rojas explained that the process uses 10 foot by 49 foot cells with aluminum cathode bars to attract and plate the zinc electrolyte on one side and lead bars on the other. The zinc plates formed on the cathode molds are removed from the bars with knives (Pictures 56-60). The Area 400, which off gases is sulfuric acid, is covered under an air permit.

The entire building is built with a secondary containment system built under the cells (Picture 64). The basement containment under the cells, when filled with either overflow from the cells or rain water from the roof, are pumped back into the Solvent Exchange. At the time of the inspection, the inspectors observed a hydraulic system located underneath the cells. A hydraulic system connection was leaking oil (Pictures 61-63). Mr. Rojas explained that floor is coated and any releases are contained in the basement and then disposed of.

10.6. Area 500 - Furnaces

The furnaces were designed to handle 16,500 pound bundles of zinc plates, stacked and placed inside (Pictures 5, 65). The zinc is melted and poured into molds for 25-pound and one-ton ingots. The ingots are sold to the steel industry for galvanizing uses, erosion protection of steel, the construction industry and the automotive industry. HHMP produces three products: prime western which contains 1% lead, continuous galvanizing grade which has 1.5% aluminum and a special high grade which is 99% zinc. Across from the Area 500 are four baghouses that capture the zinc dust from the furnace.

10.7. Less than 90-Day HWSA

The less than 90-day hazardous waste storage area (HWSA) is located in the Area 500 warehouse. The inspectors observed a fenced-in area that was locked and marked with warning signs. Inside the enclosure was seven 55-gallon drums of used oil, oily water, oily rags and oily cleanup, and four black 55-gallon drums containing xylene and methyl ethyl ketone; solvent contaminated rags; flammable liquid; and acetone and methanol. The drums were observed labeled, closed and dated (Pictures 66-69).

10.8. Laboratory

The laboratory building contained three lab areas. The main lab area had a black 55-gallon drum with a funnel attached in the satellite accumulation area (Picture 70). The inspectors observed that the funnel was missing the seal and would not prevent a spill if drum was tipped over. The drum was labeled. Mr. Harris stated that he would obtain a ball valve for the funnel to prevent

release. The lab stored empty bottles and containers along the walls for reuse and recycling (Pictures 71-72).

The second lab distilled used trichloroethylene (TCE). The inspectors observed a counter with used TCE bottles (Picture 73). The technician explained the used TCE was considered "waste in process" and would be recycled when it was no longer usable. The inspectors advised that the lab technicians monitor the volume of used TCE on the counter and ensure that the volume stay under 55-gallons.

10.9. Maintenance

The Maintenance Area contained two 55-gallon used oil drums, one with a funnel on top; a red flip-top flammable can used for oily rags and a universal waste storage cabinet (Pictures 74-77). At the time of the inspection, the inspectors observed that the boxes of universal waste lamps were labeled, closed but not dated.

Horsehead Metal Products, Inc. is in apparent violation of 15A NCAC 13A.0119(b) [40 C.F.R. § 273.15(c)], which states that a small quantity handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from the date it becomes a waste or is received.

Records Review

After the walkthrough, the inspectors requested training records, contingency plan, the hazardous, non-hazardous, used oil and the universal waste manifests. The generator status notification (EPA Form 8700-12) was last updated June 19, 2014.

Mr. Jim Harris received the NCDENR 8-Hour Basic Hazardous Waste Compliance for Generators training course on May 22, 2014 and May 9, 2013. No deficiencies were observed.

The contingency plan was not available for review. HHMP updated their status to Large Quantity Generator on June 19, 2014. The contingency plan was being developed at the time of the inspection.

The hazardous and non-hazardous waste outbound manifests and land disposal forms were reviewed. Hazardous acetone and xylene wastes, waste paint, leach residue cleanup debris and neutralized acid with soil were removed and disposed of by Dart Acquisitions (EPA ID NCD121700777) in Charlotte, NC; EWS Alabama (EPA ID ALD981020894) in Glenco, AL; Chemical Waste Management (EPA ID ALD000622464) in Emelle, AL and ECOFLO, Inc. (EPA ID NCD980842132) in Greensboro, NC. The land disposal restriction forms were reviewed.

Oily water is disposed of by Dart Acquisitions (EPA ID SCR000074575) and JBR Environmental Services (EPA ID SCR000004358) in Spartanburg, SC.

Waste gypsum is disposed of by Waste Management Palmetto Landfill in Wellford, SC.

Summary

The closing conference was held with representatives of HHMP, NCDENR and the EPA. During this meeting, the EPA and NCDENR presented the preliminary results of the inspection, HHMP was inspected as a large quantity generator of hazardous waste. At the time of the inspection, HHMP did not appear to be in compliance with some requirements of RCRA.

11) **Signed**

Paula A. Whiting, Inspector

10/14/14
Date

12) **Concurrence**

Nancy McKee
Chief, North Enforcement and Compliance Section
RCRA and OPA Enforcement and Compliance Branch

10/14/14
Date

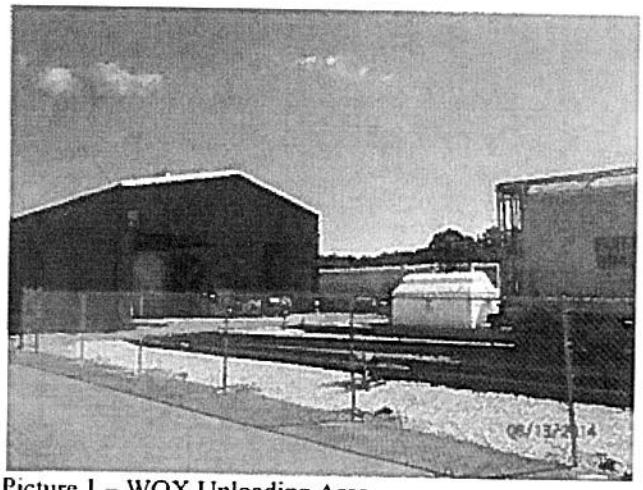
ATTACHMENT A

HORSEHEAD METAL PRODUCTS, INC.

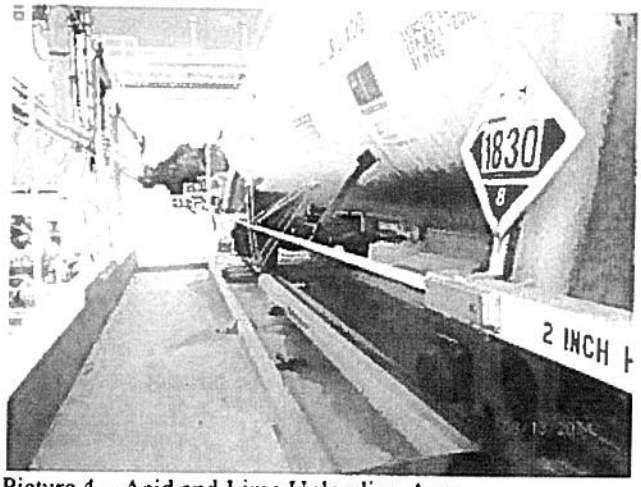
MOORESBORO, NORTH CAROLINA

COMPLIANCE EVALUATION INSPECTION PHOTOGRAPHS

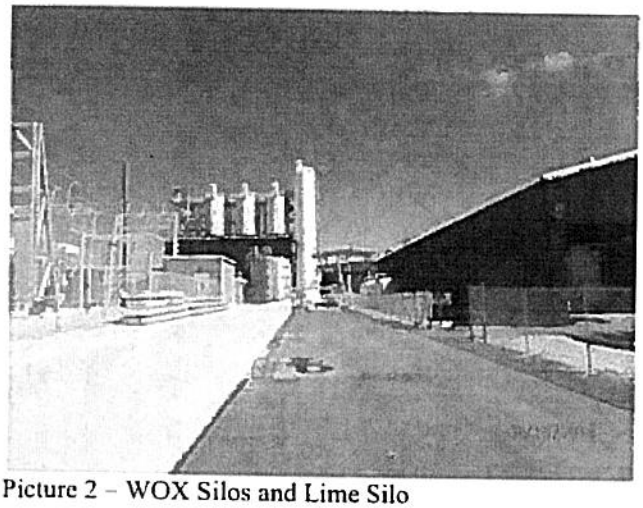
AUGUST 13, 2014



Picture 1 – WOX Unloading Area

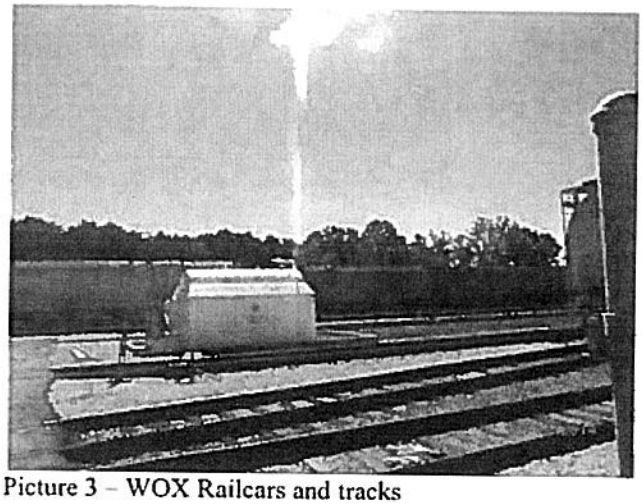


Picture 4 – Acid and Lime Unloading Area

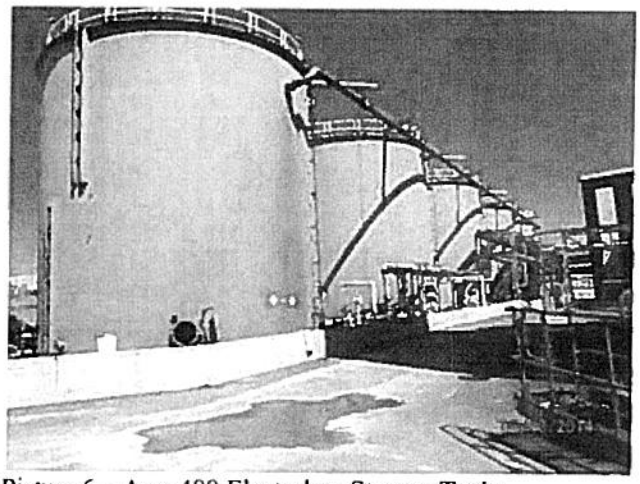


Picture 2 – WOX Silos and Lime Silo

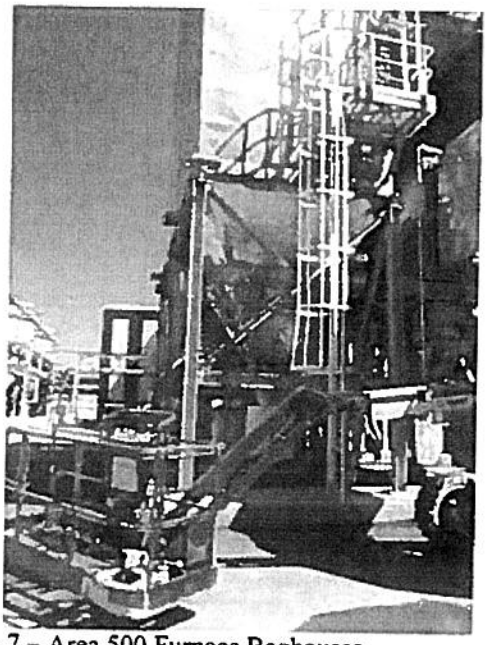
Picture 5 – Area 500 Furnace with stacks of zinc plates



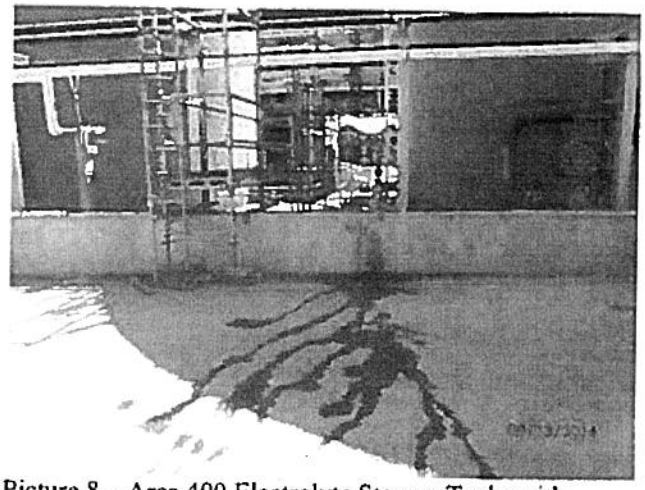
Picture 3 – WOX Railcars and tracks



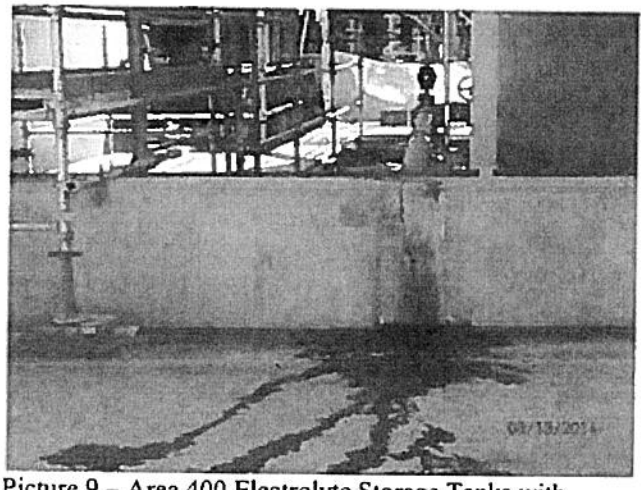
Picture 6 – Area 400 Electrolyte Storage Tanks



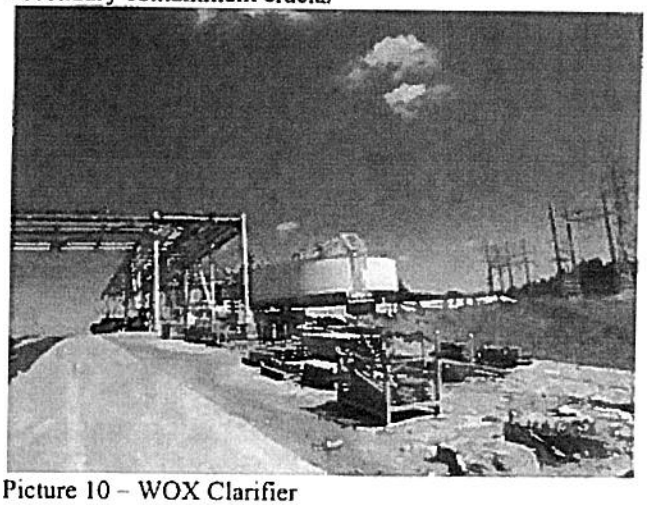
Picture 7 – Area 500 Furnace Baghouses



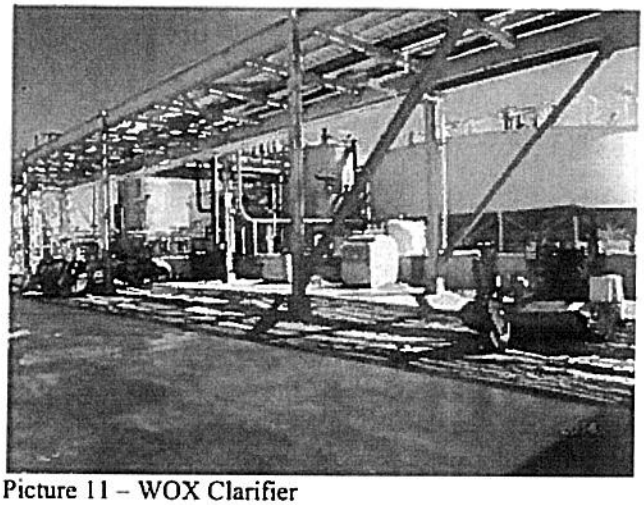
Picture 8 – Area 400 Electrolyte Storage Tanks with secondary containment cracks



Picture 9 – Area 400 Electrolyte Storage Tanks with secondary containment cracks

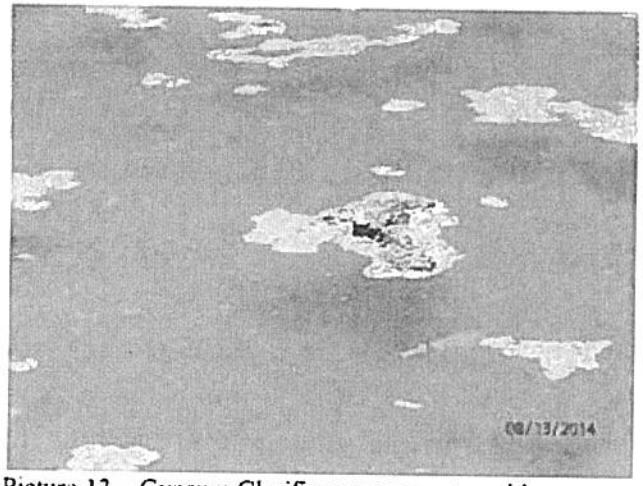


Picture 10 – WOX Clarifier



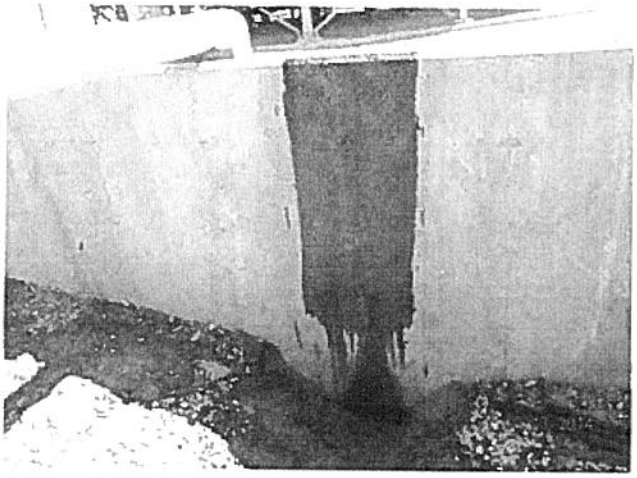
Picture 11 – WOX Clarifier

Picture 12 – WOX Clarifier secondary containment storing Gypsum Clarifier process water



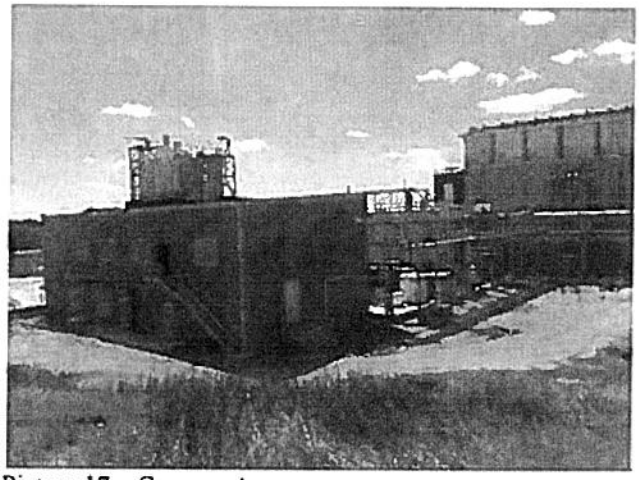
Picture 13 – Gypsum Clarifier process water with gypsum solids

Picture 14 – WOX Clarifier secondary containment crack leaking

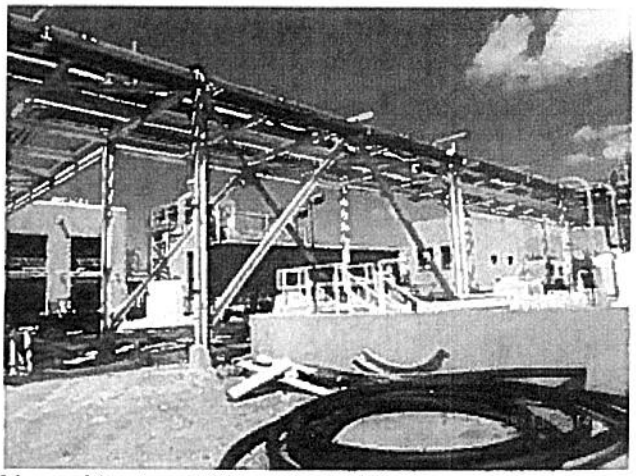


Picture 15 – WOX Clarifier secondary containment crack leaking

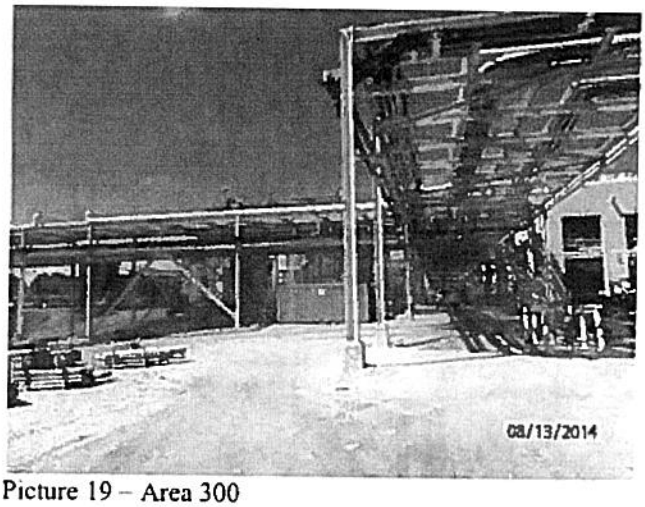
Picture 16 – WOX Clarifier secondary containment crack repaired



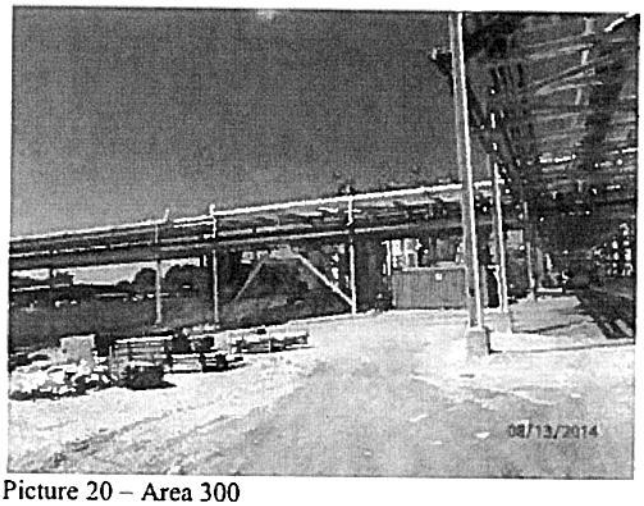
Picture 17 – Gypsum Area



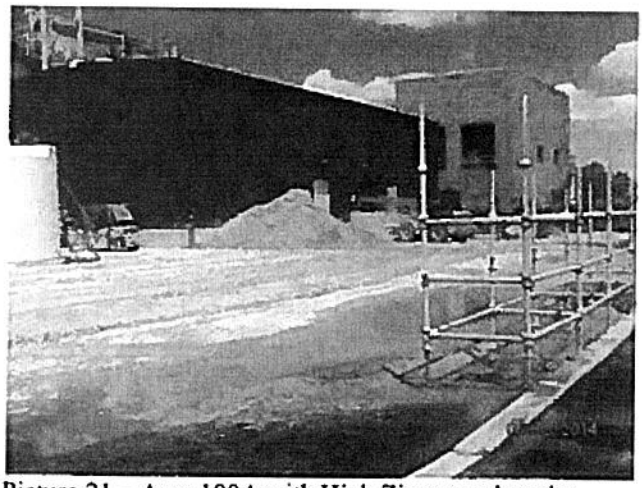
Picture 18 – Area 100A – Final High Zinc

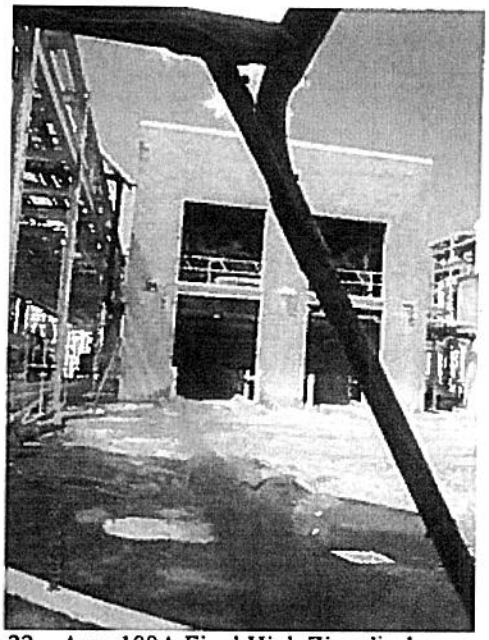


Picture 19 – Area 300

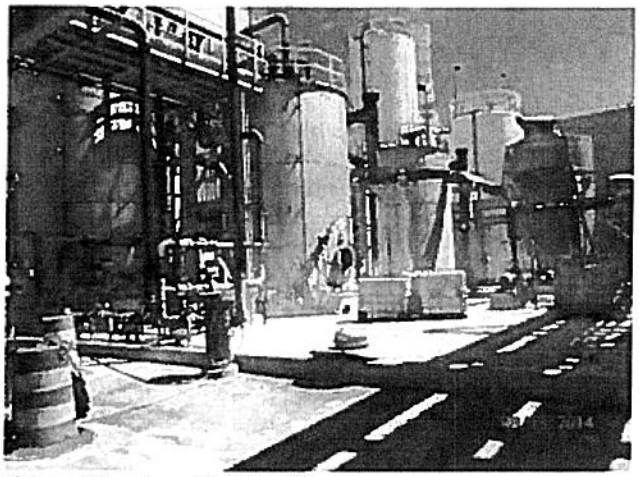


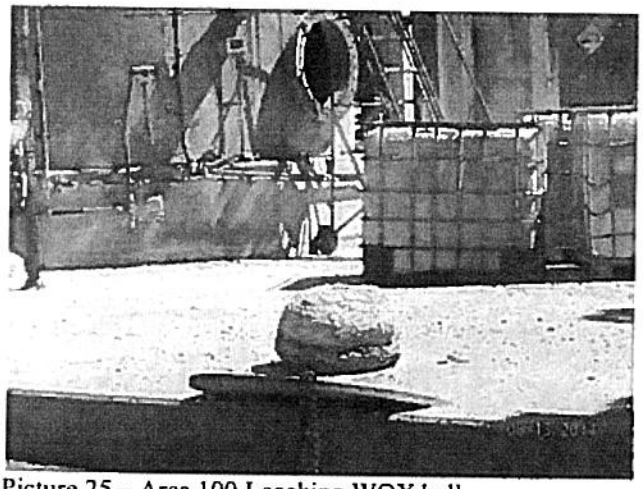
Picture 20 – Area 300


Picture 21 – Area 100A with High Zinc stored on the ground

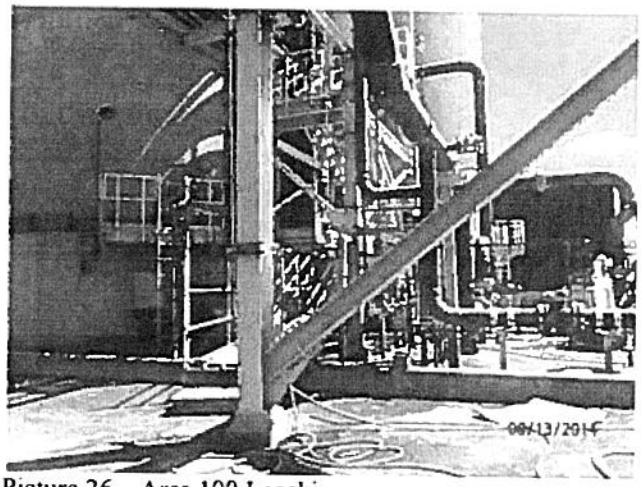

Picture 22 – Area 100A Final High Zinc discharge building


Picture 23 – Gypsum Area

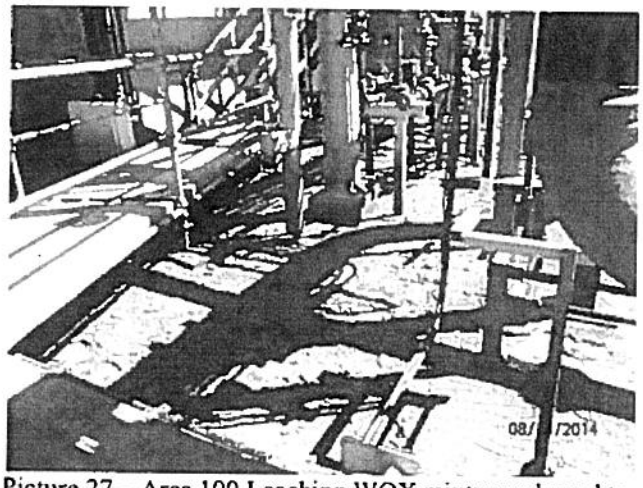

Picture 24 – Area 100 Leaching



Picture 25 – Area 100 Leaching WOX ball

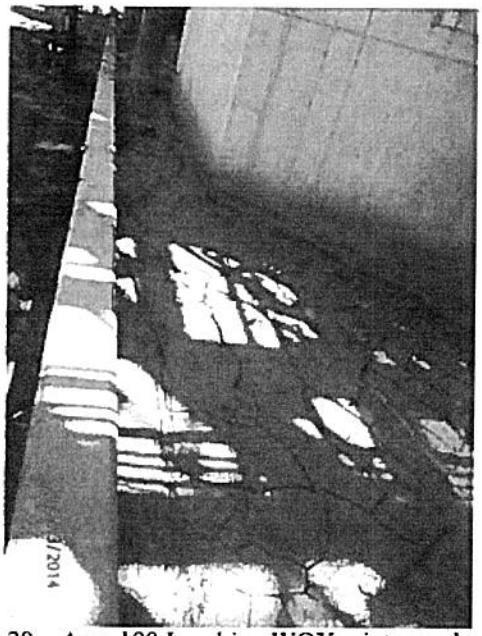


Picture 26 – Area 100 Leaching



Picture 27 – Area 100 Leaching WOX mixture released to the secondary containment

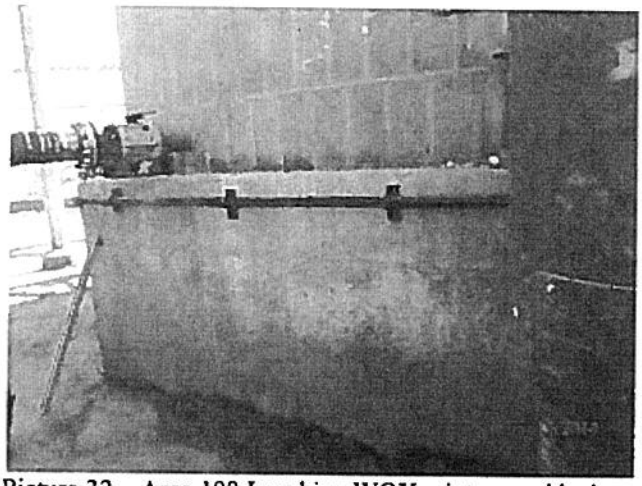
Picture 28 – Area 100 Leaching dried WOX mixture on the ground



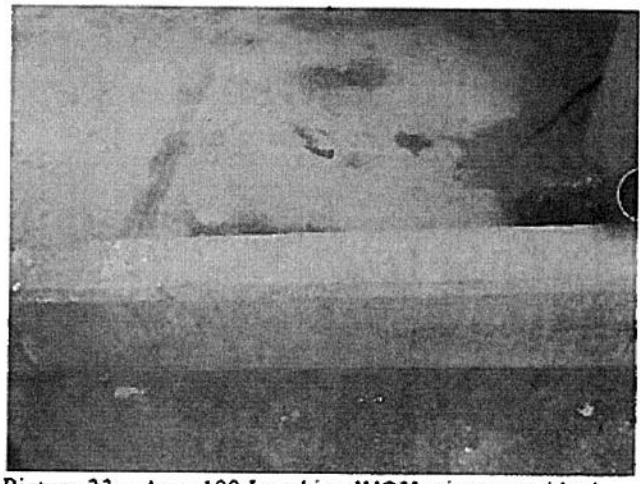
Picture 29 – Area 100 Leaching WOX mixture released to the secondary containment

Picture 30 – Area 100 Leaching WOX mixture released to the secondary containment

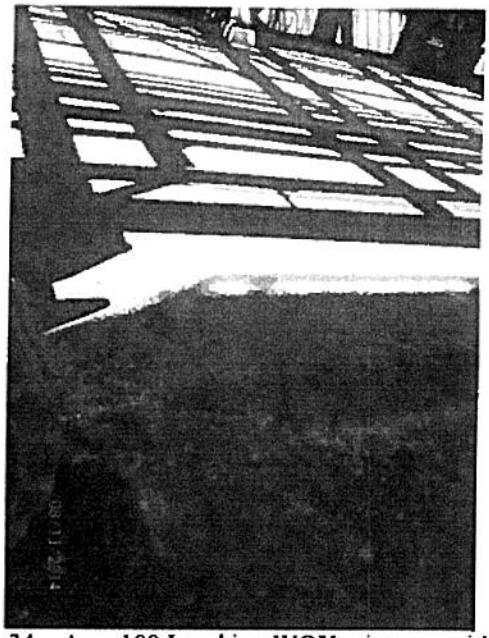
Picture 31 – Area 100 Leaching WOX mixture released to the secondary containment



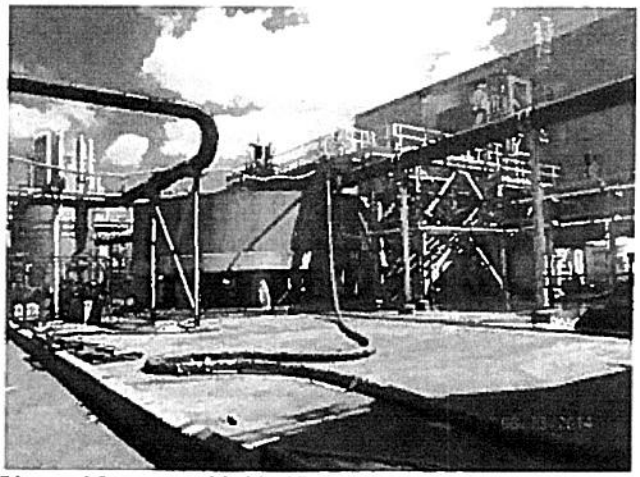
Picture 32 – Area 100 Leaching WOX mixture residual dried on the wall



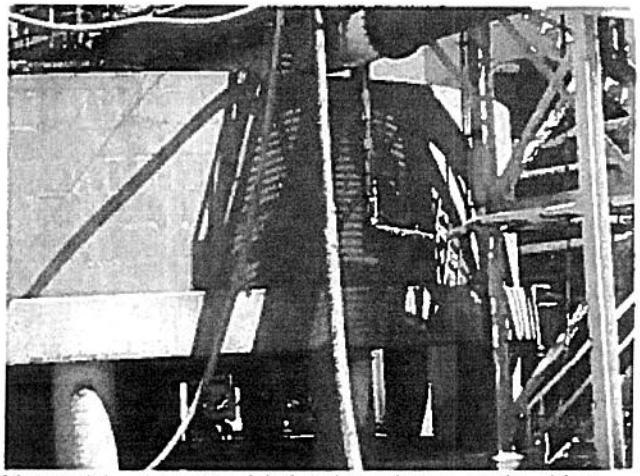
Picture 33 – Area 100 Leaching WOX mixture residual dried on the wall



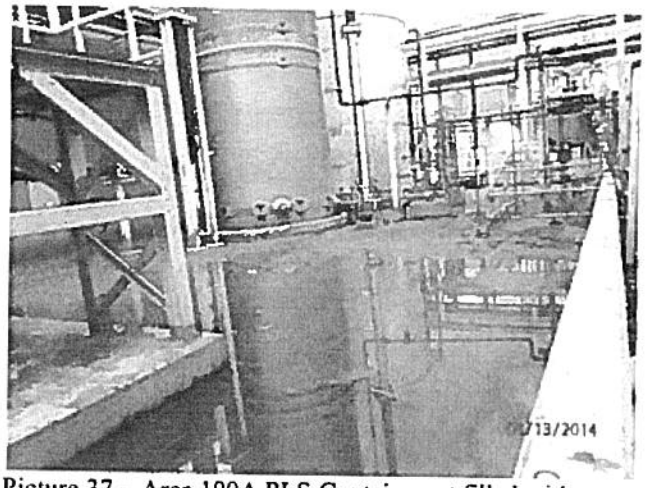
Picture 34 – Area 100 Leaching WOX mixture residual dried on the ground



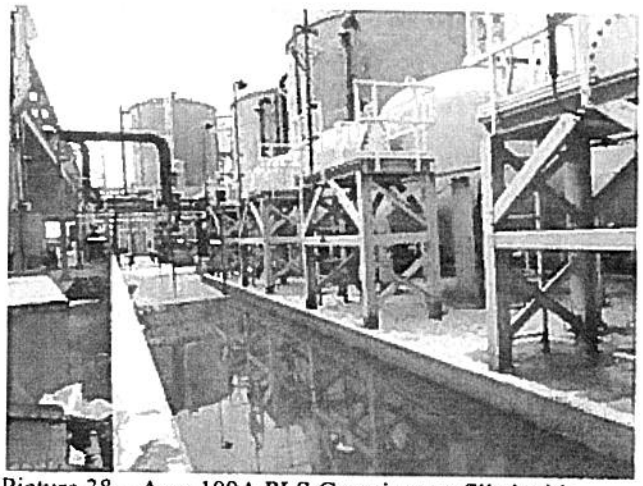
Picture 35 – Area 100 Clarifier



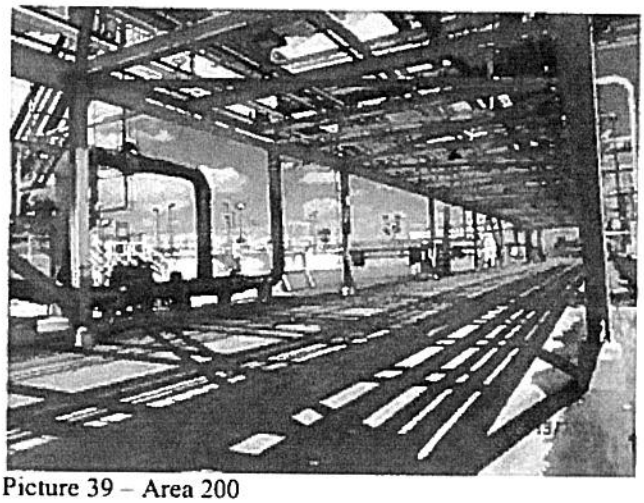
Picture 36 – Area 100 dried WOX mixture on the sides



Picture 37 – Area 100A PLS Containment filled with WOX mixture

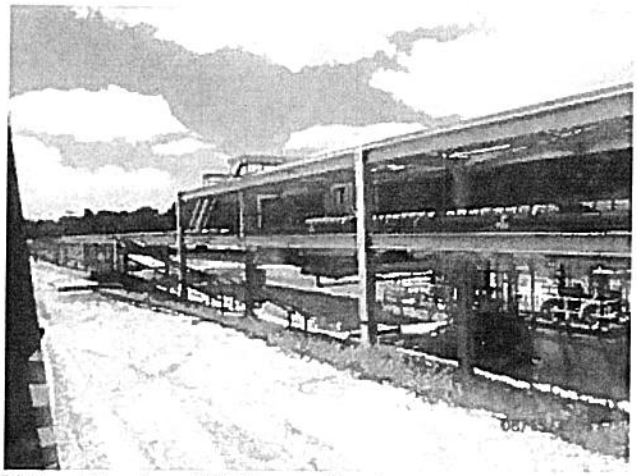


Picture 38 – Area 100A PLS Containment filled with WOX mixture and calcium



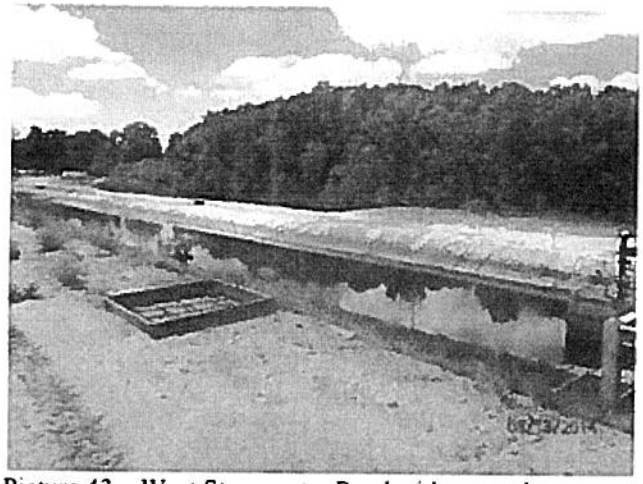
Picture 39 – Area 200

Picture 40 – Area 200 Process Ponds

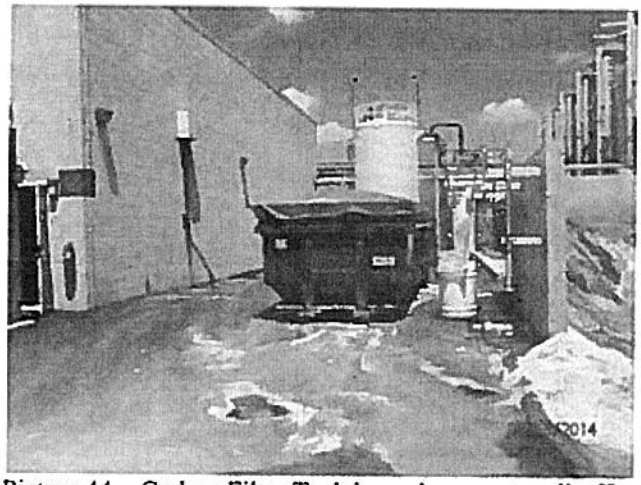


Picture 41 – Area 200 Process Ponds

Picture 42 – Area 200 Maintenance Pond

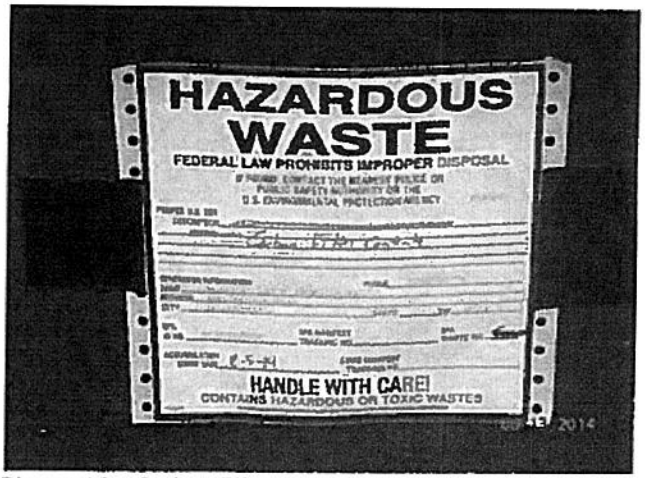


Picture 43 – West Stormwater Pond with geese deterrent

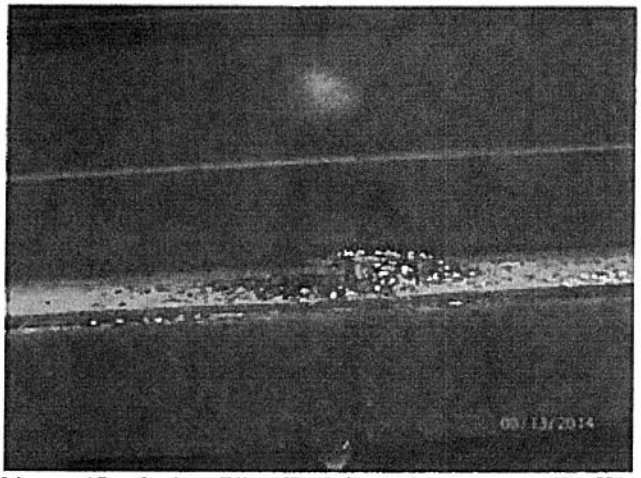


Picture 44 – Carbon Filter Tank hazardous waste roll-offs

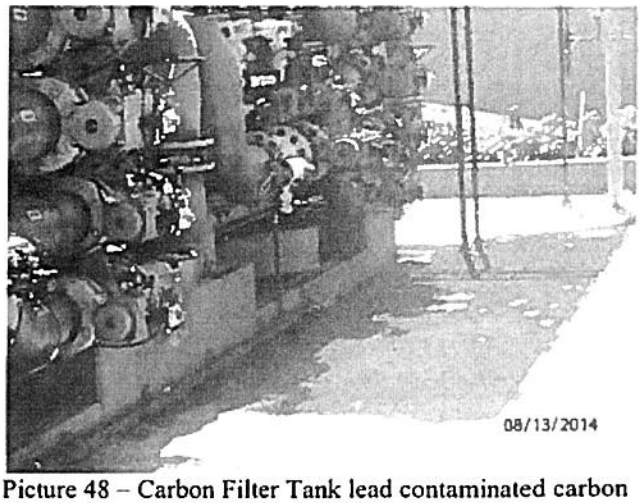
Picture 45 – Carbon Filter Tank lead contaminated carbon



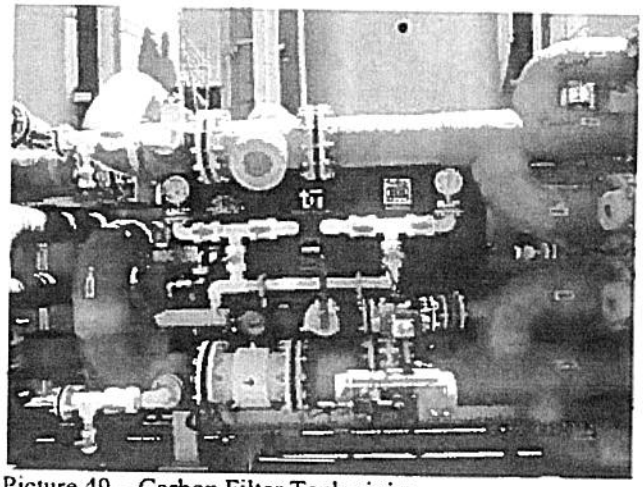
Picture 46 – Carbon Filter Tank hazardous waste roll-off label



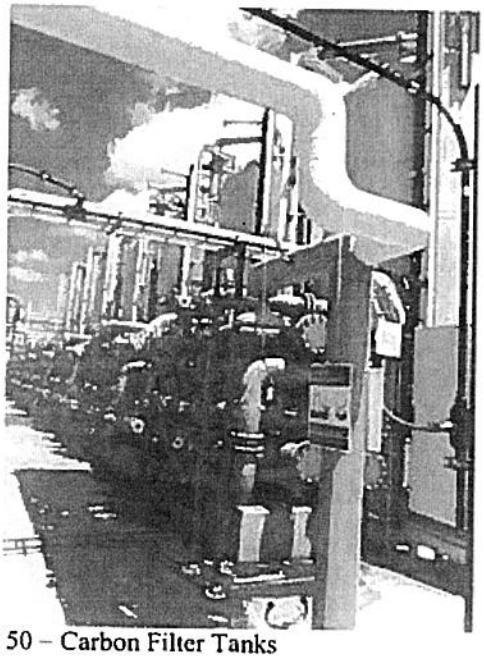
Picture 47 – Carbon Filter Tank hazardous waste roll-off 1



Picture 48 – Carbon Filter Tank lead contaminated carbon inside secondary containment



Picture 49 – Carbon Filter Tank piping



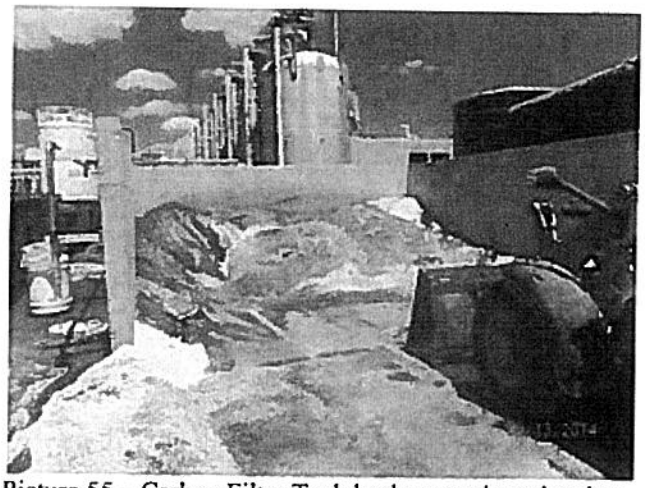
Picture 50 – Carbon Filter Tanks

Picture 51 – Carbon Filter Tank supersaks of unknown media

Picture 52 – Carbon Filter Tank supersaks of unknown media

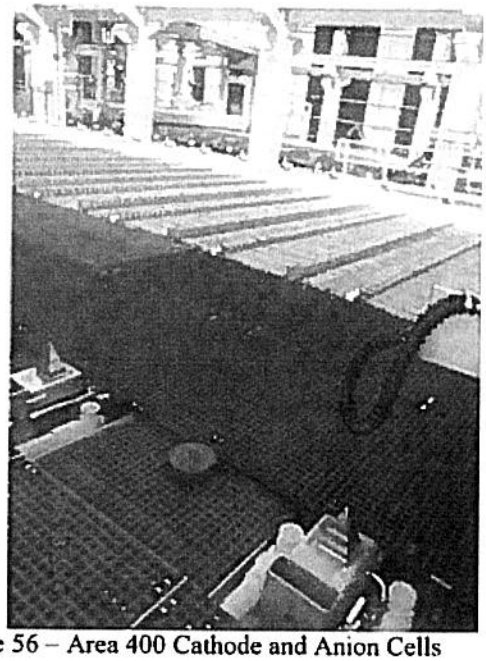
Picture 53 – Carbon Filter Tank supersaks of unknown media

Picture 54 – Carbon Filter Tank lead contaminated carbon

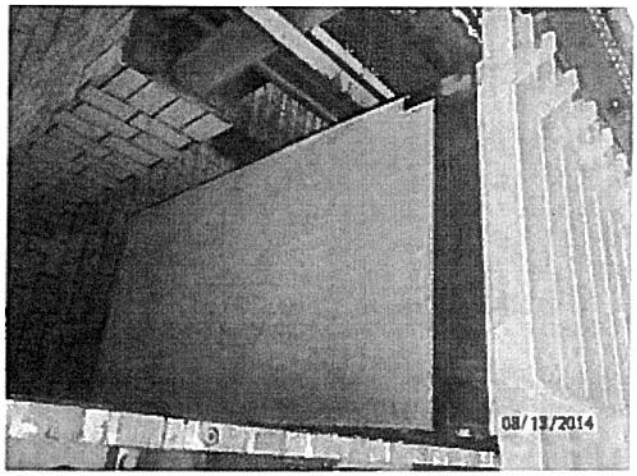


Picture 55 – Carbon Filter Tank lead contaminated carbon

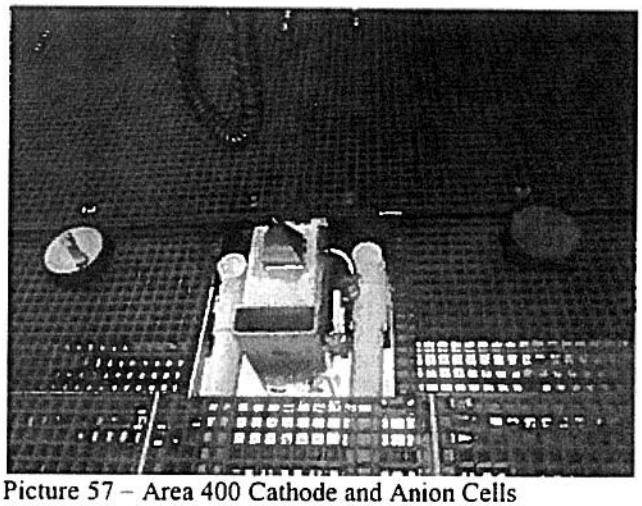
Picture 58 – Area 400 Cathode and Anion Cells



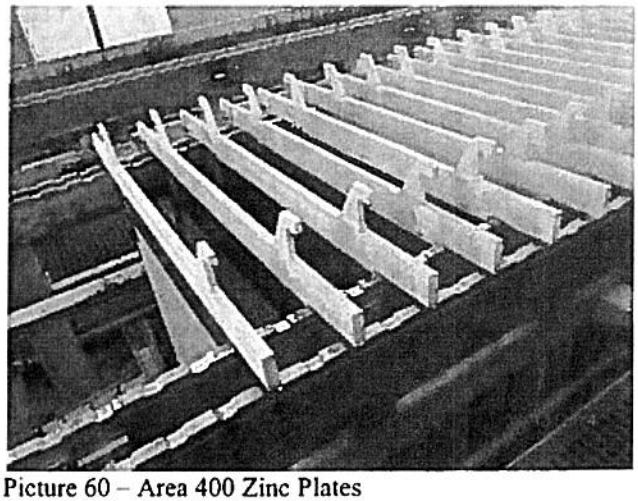
Picture 56 – Area 400 Cathode and Anion Cells



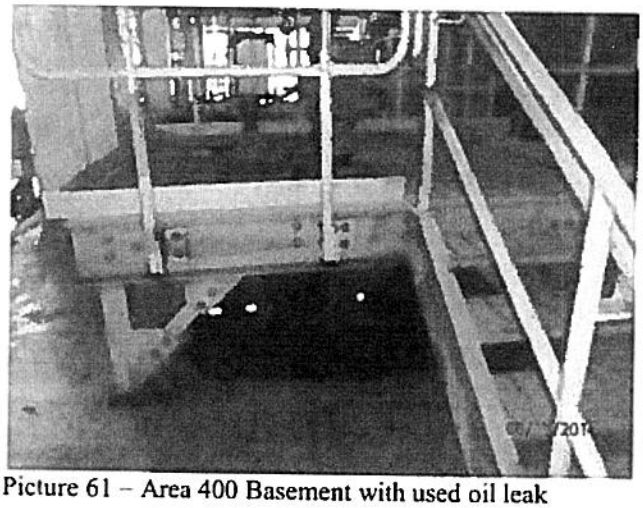
Picture 59 – Area 400 Zinc Plates



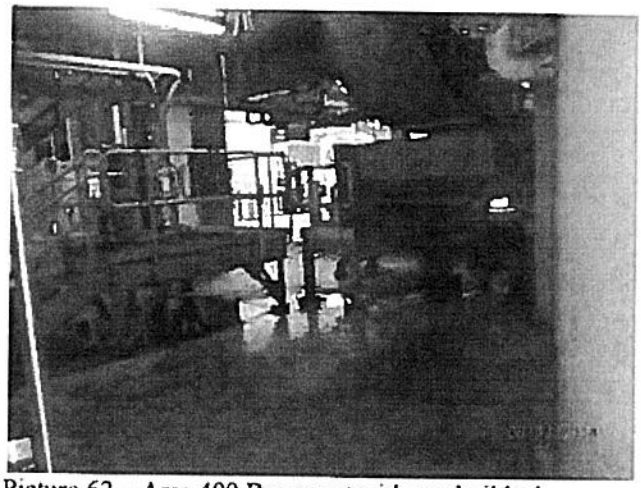
Picture 57 – Area 400 Cathode and Anion Cells



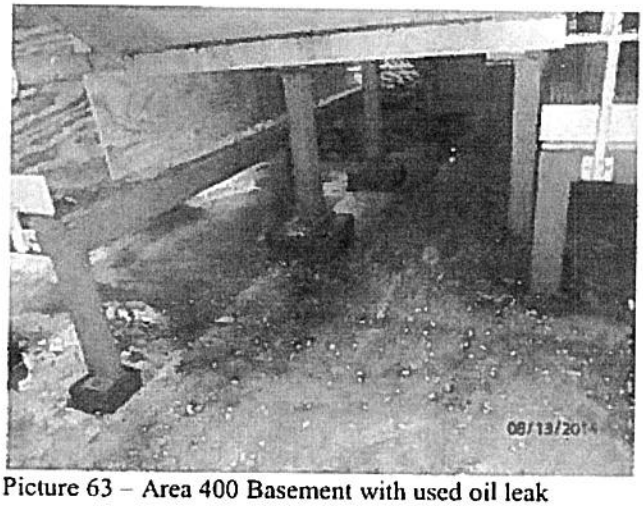
Picture 60 – Area 400 Zinc Plates



Picture 61 – Area 400 Basement with used oil leak



Picture 62 – Area 400 Basement with used oil leak



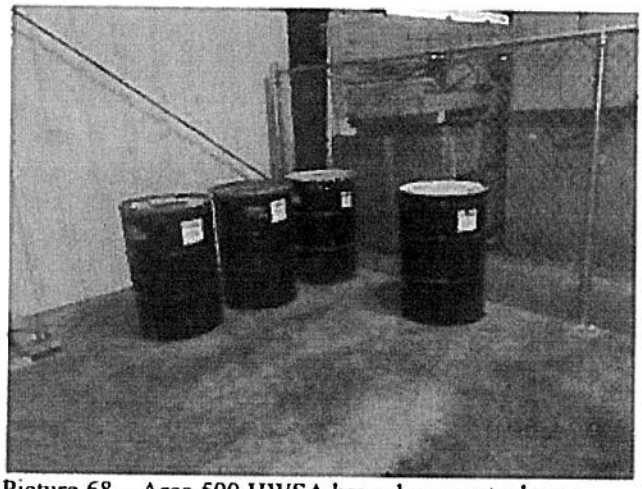
Picture 63 – Area 400 Basement with used oil leak

Picture 64 – Area 400 Basement underneath the cells

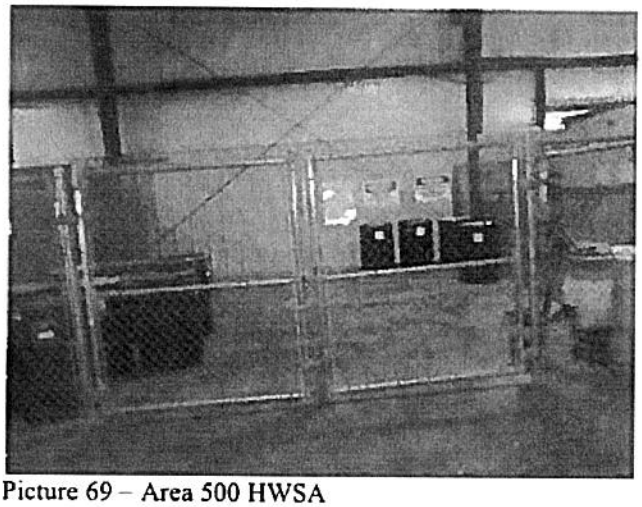
Picture 65 – Area 500 Furnace stack of zinc plates

Picture 66 – Area 500 HWSA hazardous waste drums

Picture 67 – Area 500 HWSA used oil drums



Picture 68 – Area 500 HWSA hazardous waste drums

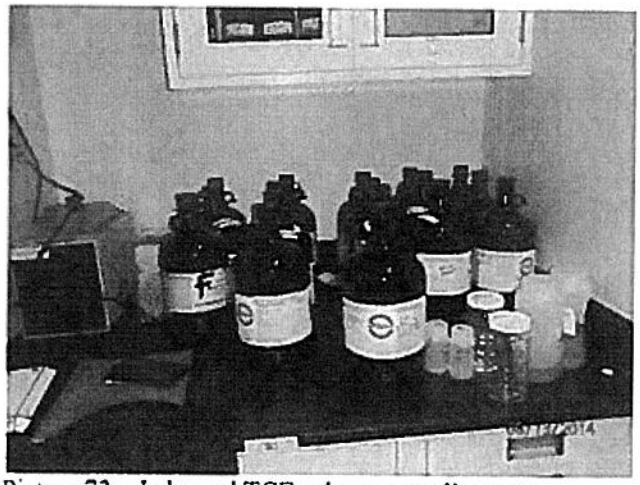


Picture 69 – Area 500 HWSA

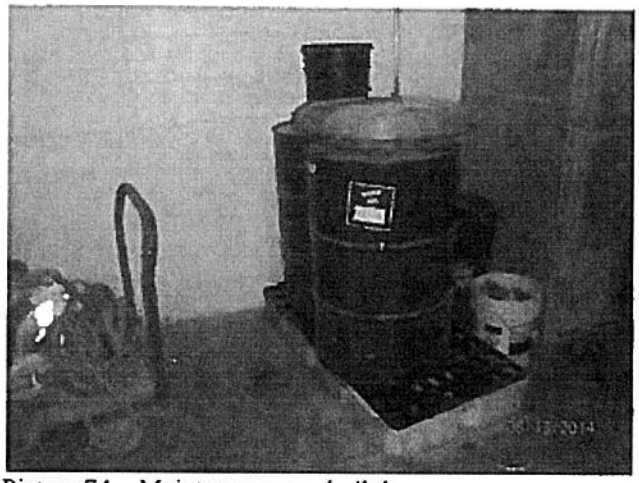
Picture 70 – Lab HWSAA solvent drum

Picture 71 – Lab RCRA empty bottles

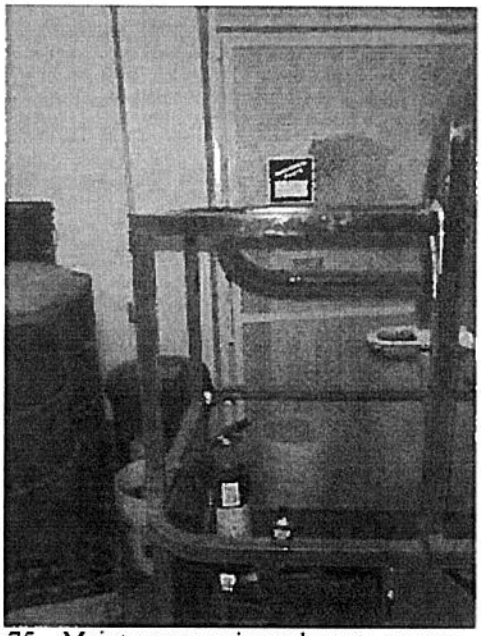
Picture 72 – Lab RCRA empty bottles



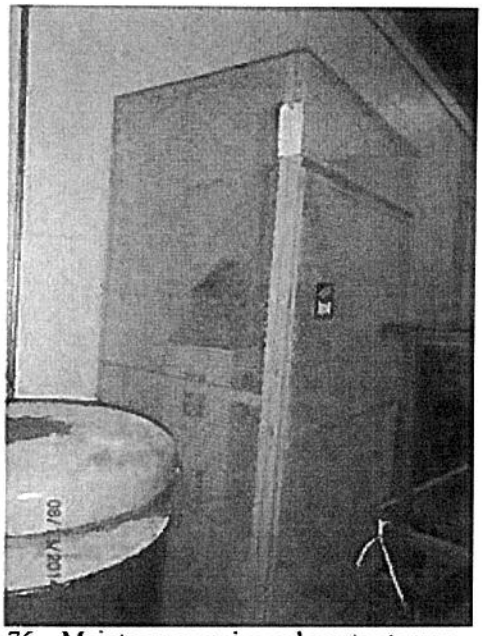
Picture 73 – Lab used TCE solvent recycling area



Picture 74 – Maintenance used oil drum



Picture 75 – Maintenance universal waste storage



Picture 76 – Maintenance universal waste storage

Picture 77 – Maintenance universal waste storage

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FEB 22 2016

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Jim Harris
Environmental Manager
Horsehead Metal Products, Inc.
484 Hicks Grove Road
Mooresboro, North Carolina 28533

SUBJ: Notice of Opportunity to Show Cause
Horsehead Metal Products, Inc.
EPA ID# NCR000159038

Dear Mr. Harris:

Enclosed is a copy of the U.S. Environmental Protection Agency inspection report documenting the results of the October 14-15, 2015, inspection at the Horsehead Metal Products, Inc. located at 484 Hicks Grove Road in Mooresboro, North Carolina. This was an EPA Compliance Evaluation Inspection (CEI) for the purpose of evaluating the facility's compliance with the applicable Resource Conservation and Recovery Act (RCRA) regulations.

Enclosed is the CEI report that indicates findings of RCRA were discovered. A copy of this report has been forwarded to the North Carolina Department of Environmental Quality (NC DEQ).

If you have any questions regarding this matter, please contact Paula Whiting by phone at (404) 562-9277 or by email at whiting.paula@epa.gov.

Sincerely,

Hector M. Danois
Acting Chief, Hazardous Waste Enforcement
and Compliance Section
Enforcement and Compliance Branch

Enclosure

cc: Brent Burch, NC DEQ (sent via electronic mail)
Jeffrey Menzel, NC DEQ (sent via electronic mail)

Metals Detected in Non-Environmental Samples
January 2017 U.S. EPA Split Sampling
Horsehead Metal Products
Mooresboro, North Carolina

		Sample Location:	H03	H04	H05	H06	H07	H08	H09	H10
		EPA Sample Designation:	300 Area - PLINT Plant	300 Area - WOX Storm Drain	100 Area - Storm Water Grate	Old Construction Storm Water Pond	Storm Water Pond	Maintenance Pond	Raffinate Pond	Depleted Solution Pond
		Sample Location Notes:	East Road Storm Drain next to PLINT pad	East Road Storm Drain next to WOX Clarifiers	100 Area - Inside the Storm Water Drain Piping	-	West Storm Water Pond	West Maintenance Pond	-	-
		Sample ID:	H03WAS	H04WAS	H05WAS	H06SD	H07WAS	H08WAS	H09WAS	H10WAS
		Sample Date:	01/24/2017	01/24/2017	01/24/2017	01/25/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017
Method	**Analyte**	**Units**								
SW6010	Aluminum	mg/kg	7000	3600	7700	50000	8500	490	1200	2000
SW6010	Antimony	mg/kg	89 J	9 J	7.6 J	ND	2.5 J	ND	ND	0.97 J
SW6010	Arsenic	mg/kg	53 J	13	12 J	9.6	ND	ND	ND	ND
SW6010	Barium	mg/kg	140	1500	51	80	34	25	72	12
SW6010	Beryllium	mg/kg	ND	ND	ND	ND	ND	8.4	3	ND
SW6010	Cadmium	mg/kg	1600	1800	850	4.6	6400	4.9	11	2500
SW6010	Calcium	mg/kg	81000	5400	4300	1300 J	22000	ND	150 J	3000
SW6010	Chromium, Total	mg/kg	1500	260	260	45	58	200	230	15
SW6010	Cobalt	mg/kg	12	5.3	5.8 J	14 J	2.9 J	ND	ND	1.4
SW6010	Copper	mg/kg	1800	560	560	50	700	11	8	240
SW6010	Iron	mg/kg	160000	55000	38000	73000	16000	17000	24000	5700
SW6010	Lead	mg/kg	56000	14000	15000	91 J	3700	1200	14000	540
SW6010	Magnesium	mg/kg	8900	3500	3100	3300	2600	ND	220 J	870
SW6010	Manganese	mg/kg	30000	11000	7100	460	5400	14	670	2000
SW6010	Nickel	mg/kg	130	60	40	17 J	19	ND	ND	7.4
SW6010	Potassium	mg/kg	6500	760	1800	5200	1700	ND	610 J	620
SW6010	Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
SW6010	Silver	mg/kg	180	43	56	ND	19	50	240	5.2
SW6010	Sodium	mg/kg	5300	150 J	130 J	ND	900	ND	ND	79 J
SW6010	Thallium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
SW6010	Vanadium	mg/kg	110	27	36	110	22	ND	4 J	7.5
SW6010	Zinc	mg/kg	160000	190000	77000	560	92000	27000	27000	36000
SW7471	Mercury	mg/kg	0.21	0.056 J	0.18	0.015 J	0.038 J	0.026 J	0.057 J	ND

Notes:

J = Estimated result, < practical quantitation limit and ≥ minimum detection limit

mg/kg = Milligrams per kilogram

ND = Analyte not detected

U.S. EPA = United States Environmental Protection Agency

Metals Detected in Environmental Soil and Sediment Samples
January 2017 U.S. EPA Split Sampling
Horsehead Metal Products
Mooresboro, North Carolina

		Sample Location:	H01	H06	H12	H13	H14	HC
		EPA Sample Designation:	Railroad Unloading Area Composite Sample	Old Construction Storm Water Pond	Basin 1 Storm Water Discharge Outlet	Runoff Area - Depleted Solution Pond	Basin 1 Skimmer Pond	Background Control Sample
		Sample Location Notes:	-	-	Basin 1 Near the Skimmer Box	-	Basin 1 Energy Dissipator	-
		Sample ID:	H01WAS	H06SD	H12WAS	H13SF	H14WAS	HCONTROL
		Sample Date:	01/24/2017	01/25/2017	01/24/2017	01/25/2017	01/24/2017	01/25/2017
		Matrix:	SO	SE	SE	SO	SE	SO
Method	**Analyte**	**Units**						
SW6010	Aluminum	mg/kg	17000	50000	34000	7800	2900	12000
SW6010	Antimony	mg/kg	ND	ND	ND	ND	0.88 J	ND
SW6010	Arsenic	mg/kg	2.9 J	9.6	4.3 J	1.9 J	2.4 J	2.6
SW6010	Barium	mg/kg	81	80	130	14	15	34
SW6010	Beryllium	mg/kg	ND	ND	ND	ND	ND	ND
SW6010	Cadmium	mg/kg	0.2 J	4.6	35	17	59	0.032 J
SW6010	Calcium	mg/kg	1400	1300 J	1100 J	2400	3600	1000
SW6010	Chromium, Total	mg/kg	37	45	36	31	46	25
SW6010	Cobalt	mg/kg	30	14 J	11	9	1.7 J	1.1 J
SW6010	Copper	mg/kg	24	50	37	35	63	8.4
SW6010	Iron	mg/kg	24000	73000	30000	21000	13000	11000
SW6010	Lead	mg/kg	17	91 J	410	35	650	17
SW6010	Magnesium	mg/kg	2400	3300	5000	2000	1500	590
SW6010	Manganese	mg/kg	1200	460	1000	670	2200	88
SW6010	Nickel	mg/kg	25	17 J	16	13	6.2 J	3.6
SW6010	Potassium	mg/kg	4000	5200	4200	960	970	570
SW6010	Selenium	mg/kg	ND	ND	ND	ND	ND	0.47 J
SW6010	Silver	mg/kg	ND	ND	1.6 J	ND	2.6	ND
SW6010	Sodium	mg/kg	ND	ND	170 J	ND	ND	37 J
SW6010	Thallium	mg/kg	ND	ND	ND	ND	ND	ND
SW6010	Vanadium	mg/kg	48	110	61	29	16	23
SW6010	Zinc	mg/kg	180	560	2800	540	3900	41
SW7471	Mercury	mg/kg	ND	0.015 J	ND	ND	ND	0.0085 J

Notes:

J = Estimated result, < practical quantitation limit and ≥ minimum detection limit
SO = Soil Sample
SE = Sediment Sample
mg/kg = Milligrams per kilogram
ND = Analyte not detected
U.S. EPA = United States Environmental Protection Agency

TCLP Results for Non-Environmental Samples
January 2017 U.S. EPA Split Sampling
Horsehead Metal Products
Mooresboro, North Carolina

		Sample Location:	H03	H04		H05	H07		H08		H09		H10	
		EPA Sample Designation:	300 Area - PLINT Plant	300 Area - WOX Storm Drain		100 Area - Storm Water Grate	Storm Water Pond		Maintenance Pond		Raffinate Pond		Depleted Solution Pond	
		Sample Location Notes:	East Road Storm Drain next to PLINT pad	East Road Storm Drain next to WOX Clarifiers		100 Area - Inside the Storm Water Drain Piping	West Storm Water Pond		West Maintenance Pond		-		-	
		Sample ID:	H03WAS	H04WAL	H04WAS	H05WAS	H07WAL	H07WAS	H08WAL	H08WAS	H09WAL	H09WAS	H10WAL	H10WAS
		Sample Date:	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017	01/24/2017
		Matrix:	Solid	Aqueous	Solid	Solid	Aqueous	Solid	Aqueous	Solid	Aqueous	Solid	Aqueous	Solid
Method	**Analyte**	**Units**												
SW6010-TCLP	Arsenic	mg/l	0.027 J	ND	ND	ND	ND	ND	ND	ND	0.022 J	ND	0.022 J	ND
SW6010-TCLP	Barium	mg/l	0.053 J	0.09 J	0.15 J	0.12 J	0.022 J	0.23 J	0.057 J	0.18 J	0.035 J	0.19 J	0.028 J	0.22 J
SW6010-TCLP	Cadmium	mg/l	26	ND	9.8	9.8	0.18	28	1.4	0.077	7.5	0.11	0.5	26
SW6010-TCLP	Chromium, Total	mg/l	ND	ND	ND	ND	ND	ND	0.052 J	0.13	0.51	0.027 J	ND	ND
SW6010-TCLP	Lead	mg/l	46	ND	13	44	ND	2.1	0.39	4	1.7	3	ND	1.4
SW6010-TCLP	Selenium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW6010-TCLP	Silver	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW7470-TCLP	Mercury	mg/l	ND	ND	ND	ND	ND	ND	ND	0.000042 J	ND	0.000074 J	ND	0.000050 J

Notes:

TCLP = Toxicity Characteristic Leaching Procedure
J = Estimated result, < practical quantitation limit and ≥ minimum detection limit
mg/l = Milligrams per liter
ND = Analyte not detected
U.S. EPA = United States Environmental Protection Agency

TCLP Results for Environmental Soil and Sediment Samples
January 2017 U.S. EPA Split Sampling
Horsehead Metal Products
Mooresboro, North Carolina

		Sample Location:	H01	H06		H12	H13	H14	HC
		EPA Sample Designation:	Railroad Unloading Area Composite Sample	Old Construction Storm Water Pond		Basin 1 Storm Water Discharge Outlet	Runoff Area - Depleted Solution Pond	Basin 1 Skimmer Pond	Background Control Sample
		Sample Location Notes:	-	-		Basin 1 Near the Skimmer Box	-	Basin 1 Energy Dissipator	-
		Sample ID:	H01WAS	H06SD	H06SW	H12WAS	H13SF	H14WAS	HCONTROL
		Sample Date:	01/24/2017	01/25/2017	01/25/2017	01/24/2017	01/25/2017	01/24/2017	01/25/2017
		Matrix:	SO	SE	WS	SE	SO	SE	SO
Method	**Analyte**	**Units**							
SW6010-TCLP	Arsenic	mg/l	ND	ND	ND	0.027 J	ND	0.032 J	ND
SW6010-TCLP	Barium	mg/l	0.17 J	0.32	0.026 J	0.95	0.13 J	0.2 J	0.4
SW6010-TCLP	Cadmium	mg/l	0.018 J	0.08	0.007 J	0.61	0.29	1.1	0.013 J
SW6010-TCLP	Chromium, Total	mg/l	ND	ND	ND	ND	ND	ND	0.022 J
SW6010-TCLP	Lead	mg/l	0.31	0.61	ND	2.2	ND	15	ND
SW6010-TCLP	Selenium	mg/l	ND	ND	ND	ND	ND	ND	ND
SW6010-TCLP	Silver	mg/l	ND	ND	ND	ND	ND	ND	ND
SW7470-TCLP	Mercury	mg/l	ND	ND	ND	ND	ND	ND	ND

Notes:

J = Estimated result, < practical quantitation limit and ≥ minimum detection limit
SO = Soil Sample
SE = Sediment Sample
WS = Surface Water
mg/l = Milligrams per liter
ND = Analyte not detected
U.S. EPA = United States Environmental Protection Agency